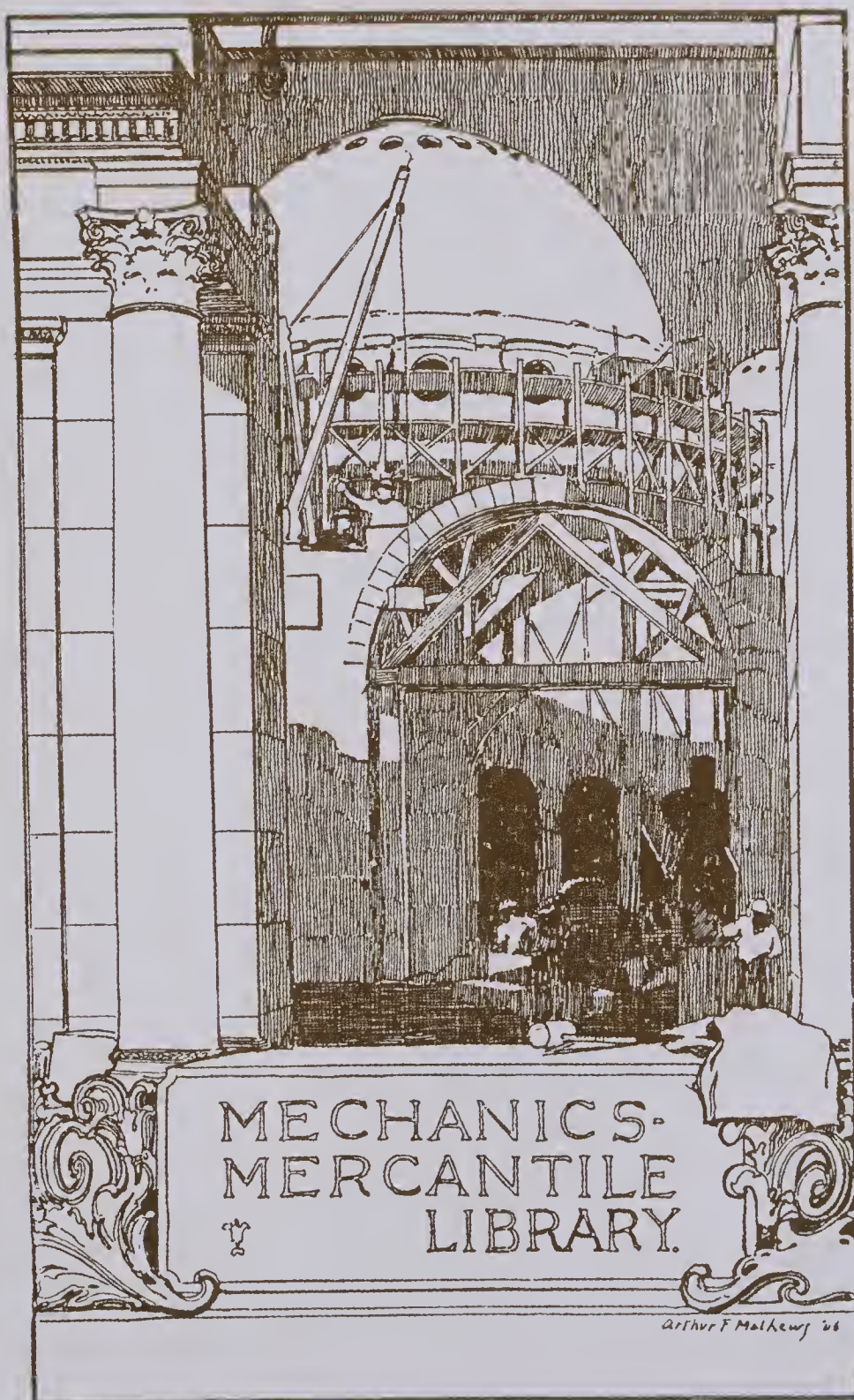


REPORT
OF THE
THIRTEENTH INDUSTRIAL EXHIBITION
OF THE
MECHANICS' INSTITUTE
SAN FRANCISCO

PROPERTY OF
MECHANICS' INSTITUTE

JUL 20 2005



Warren & Co
320 Clay

REPORT
OF THE
THIRTEENTH
INDUSTRIAL EXHIBITION

UNDER THE AUSPICES OF THE
Mechanics' Institute

OF THE
CITY OF SAN FRANCISCO,

Held at the Mechanics' Pavilion, from the 13th day of
August to the 14th day of September, 1878.



THE MECHANICS' INSTITUTE

OF THE
CITY OF SAN FRANCISCO.

Organized March 29, 1855.

OFFICERS, 1878.

I. M. SCOTT, President.

H. S. SMITH, Vice-President.

J. A. BAUER, Treasurer.

S. H. WHEELER, Cor. Secretary.

NATHANIEL HUNTER, Recording Secretary.

TRUSTEES.

C. WATERHOUSE,

H. L. HUTCHINSON,

D. A. MACDONALD,

A. L. FISH,

JAMES DRURY,

DAVID KERR,

SAMUEL DINSMORE,

EDWARD McGRATH,

ISIDOR BURNS.

Building of the Association, 27 Post Street.

Library Hours: From 9 A. M. to 10 P. M.

TERMS OF SUBSCRIPTION:

Entrance Fee.....	\$1 00
Monthly Dues.....	50
Life Membership	50 00

Entitling the Subscriber to all the Privileges of Membership, subject to the By-Laws.

The Library contains 30,000 volumes of standard and miscellaneous works, and is the official depository of the United States Patent Office Reports; also, of the Patent Reports of Great Britain, from which government it has received a complete set, consisting of 3,300 volumes, and constantly increasing.

REPORT
OF THE
THIRTEENTH
INDUSTRIAL EXHIBITION

UNDER THE AUSPICES OF THE
Mechanics' Institute

OF THE
CITY OF SAN FRANCISCO,

Held at the Mechanics' Pavilion, from the 13th day of
August to the 14th day of September, 1878.

SAN FRANCISCO:
SPAULDING, BARTO & Co., STEAM BOOK AND JOB PRINTERS,
"Scientific Press" Office, 414 Clay Street.
1878,

BOARD OF MANAGERS
OF THE
Thirteenth Industrial Exhibition,
UNDER THE AUSPICES OF THE
MECHANICS' INSTITUTE,
1878.

IRVING M. SCOTT, President.....Union Iron Works, First Street.
H. S. SMITH, Vice-President.....215 Fremont Street.
J. A. BAUER, Treasurer.....101 Post Street.
SAM'L H. WHEELER, Cor. Sec'y....N. E. cor. Market & Front Sts.
J. H. CULVER, Secretary.....27 Post Street.
J. H. GILMORE, Superintendent.....
DAVID KERR.....49 Beale Street.
C. WATERHOUSE.....29 Fremont Street.
H. L. HUTCHINSON.....417 Market Street.
A. L. FISH.....9 First Street.
D. A. MACDONALD.....217 Spear Street.
NATHANIEL HUNTER.....614 Merchant Street.
EDWARD McGRATH.....935 Market Street.
JAMES DRURY.....409 Merchant Street.
SAMUEL DINSMORE.....142 Fremont Street.
ISIDOR BURNS.....20 Steuart Street.

TABLE OF CONTENTS.

	PAGES.
Art Gallery, Catalogue of.....	25- 43
Exhibits, List of.....	12- 24
Exhibitors, Alphabetical List of.....	12- 24
Inaugural Address, by I. M. Scott, Esq.....	6- 7
Mechanics' Institute.....	Cover.
Opening Exercises.....	6
Oration, by J. W. Winans, Esq.....	7- 11
Preliminary Announcement.....	2
Report of the Board of Managers.....	1
" " Jurors on Drawings.....	45- 46
" " Jurors on California Wines.....	48-114
" " Jurors on the Institute Medal.....	44
" " President of the Mechanics' Institute....	137
REPORT OF STANDING COMMITTEES—	
Art Department.....	135
Auditing.....	123
Building.....	124
Circulars and Classification.....	124
Gas and Water.....	132
Horticultural Garden.....	131
Location.....	130
Music and Decorations.....	128-129
Police.....	130
Power and Machinery.....	126
Printing and Advertising.....	125
Privileges.....	129
Rules, Regulations and Awards.....	126-128
Tickets and Admissions.....	128
Rules and Regulations.....	4
Standing Committees.....	iii
Treasurer's Report.....	115-123
Ticket Account	115-116

STANDING COMMITTEES
OF THE
Thirteenth Industrial Exhibition.

Auditing:

WATERHOUSE, KERR, MACDONALD.

Building:

MACDONALD, SMITH, McGRATH.

Circulars and Classification:

McGRATH, WHEELER, WATERHOUSE.

Printing and Advertising:

DRURY, HUNTER, KERR.

Power and Machinery:

SMITH, DINSMORE, FISH.

Rules, Regulations and Awards:

HUNTER, DRURY, BAUER.

Tickets and Admissions:

HUTCHINSON, SMITH, HUNTER.

Music and Decorations:

BAUER, SMITH, MACDONALD.

Privileges:

DINSMORE, KERR, BURNS.

Location:

WHEELER, BURNS, DINSMORE.

Police:

FISH, McGRATH, WATERHOUSE.

Horticultural Garden:

BURNS, HUTCHINSON, DINSMORE.

Gas and Water:

WHEELER, MACDONALD, DRURY.

Art Department:

KERR, WHEELER, WATERHOUSE.

REPORT OF THE BOARD OF MANAGERS
OF
THE THIRTEENTH INDUSTRIAL EXHIBITION,
TO THE
TRUSTEES OF THE MECHANICS' INSTITUTE.

GENTLEMEN—The Board of Managers of the Thirteenth Industrial Exhibition of the Mechanics' Institute have the honor to submit to the members of the Association and the public their report of the late exhibition.

After due consideration, it was decided not to award premiums this year, except the Institute Medal for the most meritorious California invention on exhibition; Diplomas to the public and private schools, and sundry cash awards to exhibits of plants and flowers.

To advance the wine interest of this State, a most competent and expert Committee kindly consented to serve, and to their able, interesting and valuable report in these pages we call your special attention.

It was intended at one time to embody in it a notice and description of each exhibit, a circular being sent to exhibitors requesting them to forward the proper information, but subsequently it was thought best to omit such matters this year, as at the next Fair in 1879 premiums may be awarded by the Board of Managers which will necessitate a full examination and report on all articles by competent and qualified committees.

As will be seen from perusing the report of the President, Treasurer, and various Committees, the Exhibition has been a most successful one notwithstanding the great depression in the manufacturing and other industries of the State.

From the patronage and good will received and shown by the public during the past five consecutive yearly Exhibitions, it would seem that these Fairs have become almost a necessity to our citizens, and there is no doubt but in the future will be sustained with the same liberal spirit as heretofore.

PRELIMINARY ANNOUNCEMENT.

The following Preliminary Announcement of the Exhibition was sent in the form of a circular to all the principal manufacturers and producers on this coast:

The Board of Managers have the honor to announce that the Thirteenth Exhibition of the Mechanics' Institute, and the fifth annual one given in the Grand Pavilion on Mission, Market and Eighth streets, will open to the public August 13th, and close September 14th, 1878.

The public are respectfully requested to respond liberally as Exhibitors and Visitors, and thus enable the Board of Trustees to realize from this Fair a sum sufficient to liquidate the small indebtedness now due on the Mechanics' Institute Library property, and to answer a speedy fulfillment of the sanguine hope of the Trustees and well-wishers of the Society to make it a Free Library for mechanics and apprentices, and enable the Board to institute permanent classes for instruction in the mechanic arts.

The Exhibition building is 550 feet long, 200 feet wide, centrally located, and accessible by six lines of street cars, giving direct communication with all parts of the city.

The Promenade is a gallery under the main nave, 16 feet wide and 1,000 feet long, from which an unobstructed view of the interior is obtained.

In addition there is an Annex 220 feet long by 75 feet wide, containing the Exotic Garden, which will contain all that is rare and beautiful in the floral and horticultural world, increased by the finest rustic and picturesque effects obtainable. The whole, Pavilion and Garden, will be brilliantly illuminated at night.

The Art Gallery, 400 feet long by 50 feet wide, will be made specially attractive by Paintings, Statuary and Works of Art. The Managers are happy to announce that the San Francisco Art Association have kindly consented to take charge of the same, and that our local artists have promised to display their best productions.

Among the many attractions this year the musical part of the Exhibition will be a noted feature, as the best obtainable orchestra will each afternoon

and evening give a grand instrumental concert, introducing the latest and most pleasing novelties of musical composition.

A fine Refreshment Saloon, Restaurant, and 4,500 comfortable seats will be provided for the convenience of visitors, of which the average attendance during the last Exhibition was 12,500 per day.

The Board of Managers particularly desire that the natural and manufactured products of this coast should be well represented, and to that end all possible facilities will be extended to exhibitors of such articles.

A large and powerful engine will furnish ample motive power, while steam and water will be furnished for such machines and appliances as require them, free of cost to the exhibitors. The main line of shafting is 490 feet long, with pulleys sufficient for all requirements.

It is expected that the various transportation companies will convey goods intended for exhibition at one-half the usual rates.

Applications for space, rules and regulations, or any information regarding the Exhibition, will be given or sent by addressing the Secretary.

RULES AND REGULATIONS

FOR THE

THIRTEENTH INDUSTRIAL EXHIBITION,

1878.

The Pavilion will be open for the reception of goods on Monday, July 22d. The Exhibition will be open to the public on Tuesday, August 13th, at 7 o'clock P. M.

Applications for space should be made on or before July 25th, stating character of exhibit, amount and kind of space required—wall, table or floor. Blanks will be furnished for this purpose. All articles must be in place not later than August 10th.

Space allotted and not taken possession of by August 10th may be assigned to others. The height of exhibits, on the main floor, must not exceed six feet for opaque objects, nor ten feet for glass or signs. On the partitions, outside walls, and other parts of the building, where light nor view will be obstructed, all the height desired can be taken.

If glass cases are used, state their size, height, and particulars of the exhibit. This is important on account of light.

In the Machinery Hall no rule can be given.

A portion of the tables are four and one-half feet wide, with an aisle on each side, the rest are three feet wide, placed against a wall, that can be used if desired.

The shaft is $2\frac{1}{8}$ inches in diameter, has sufficient 30-inch pulleys for all requirements, and makes about 110 revolutions per minute.

The Art Galleries are lighted by skylights, with an unobstructed wall space from ceiling to floor.

All persons presenting articles for exhibition must have them registered by the Receiving Clerk, who will give a receipt for the same, which receipt must be presented when the articles are withdrawn, at the close of the Exhibition.

Articles intended for sale may be labeled accordingly, but cannot be removed until the close of the Exhibition, except by written permission of the Managers.

No charge of any kind will be made to exhibitors for space. Steam and water will also be furnished free, in reasonable quantities. Extra gas must be paid for by exhibitors using the same.

Every facility possible will be given to exhibit working machinery to the best advantage.

The name of every article must be attached by the exhibitor to it.

Perishable articles will be received, or may be removed at any time during the Exhibition, with the consent of the Managers.

The most effectual means will be taken, through the agency of the Police and otherwise, to guard and protect the property on exhibition; and it will be the purpose of the Managers that all articles shall be returned to the owners without loss or injury. Still, all articles deposited will be at the risk of the owners.

Space will be awarded as early as practicable (after the application has been received), consistent with the proper arrangement of the goods.

All articles arriving too early will be stored free of cost to the exhibitor, and the Managers will have them duly placed in proper position for exhibition. No freight charges will be paid by the Managers.

The Board reserves the right to exclude from the Exhibition all things they deem objectionable, as nostrums, articles of an explosive, inflammable, dangerous, or offensive character.

All articles will be for exhibition only, except those in the Horticultural Garden, exhibits from the pupils of the Public Schools, and from apprentices.

The Institute Gold Medal will be awarded to the most meritorious and valuable California invention on exhibition, originated since January 1st, 1876.

THE OPENING EXERCISES.

The opening exercises took place, as announced, at the Metropolitan Temple, Tuesday, August 13th, at 2 p. m., to a large and appreciative audience. The stage was occupied by the Chaplain, Orator, Reader, invited guests, and the Board of Managers of the Exhibition.

The exercises commenced by the Band, under the leadership of Prof. T. Rosenstein, rendering the overture "Nabrico" in a satisfactory manner. The Rev. F. F. Jewell, D. D., then offered up an invocation, earnestly asking God's blessing on the enterprise, his words being marked by a spirit of conscientious and religious feeling. The well-known Amphion Club, then gave a quartette, receiving hearty applause. IRVING M. SCOTT, President of the Mechanics' Institute, then came forward and delivered the

INAUGURAL ADDRESS.

LADIES AND GENTLEMEN—In opening the Thirteenth Industrial Exhibition we resume the story of mechanical advancement, and meet to review the progress of the past year. The story is replete with the incidents of successful encroachments upon the domain of the unknown. A numerous and persistent army of explorers have invaded the shadowy realms, and forced the heavens to yield part of their secret; and burrowing amid the inner recesses of the earth, have laid bare facts and conditions which enable the scientist to resolve from the domain of thought laws and principles heretofore unknown. No year passes without extending the knowledge of mechanical principles, and obtaining new victories over the forces of nature, making possible the improbable. And the shadows of the past become the tangible realities of the present. Inventions and improvements take a step forward during periods of financial and commercial prostration. Universal depression releases from the iron grip of business drudgery, brains and fingers whose cunning takes from the field of speculation, and harnesses to the practical the subtle elements of the universe.

The past twelve months has been the opening of a new book, and a startled world is looking down a new vista through the gates ajar, unlocked by the discoveries of Edison. The enlarged knowledge of the science of sound has swept the telegraph with its cumbrous, doubly-written, faulty messages aside, and substituted the telephone. Will the phonograph of the future be a substitute for failing eyesight? Will the megaphone quicken the dulled organ of

hearing? Shall the choicest gems of literature be transmitted through the medium of mechanism?

In the future of mechanical science, the intonations of the voice will be transmitted. The blind shall see, and the deaf hear! Looking back at what mechanic art has been, knowing what she is now, and seeing all the professions, her willing handmaids, bringing their laurels to her feet, and from this standpoint looking forward and upward to the future, the constructing engineer is the Colossus in the coming time.

The machinery of transportation and its twin sister, the telegraph, have destroyed the old conditions of supply and demand. And from the old order of keeping a supply on hand we pass to the new order of manufacturing on demand. This transition has for a time disturbed the financial, commercial, political and social conditions. And it has been a year of adjustment. The relation of the mechanical classes to the governing classes are undergoing a change, which, when consummated, will prove the wisdom of a system in which the humblest citizen shares with the highest the duties of government.

The nation's interests will be safe with the mechanics, who have been taught to take the crude materials and shape them into a harmonious whole; taught to construct, taught to build up, taught to accomplish, trained to confine their energies in one direction for a common purpose. For they will take this discipline with them into the council chambers and prove that the strength of the republic rests in the producers.

The civilization of this coast has done but little toward providing suitable amusements for the people. The theatre on one hand, the saloon on the other (or worse), is all that this community offers to the young. These industrial exhibits supply the one great want of our social system. Where amply arranged and sheltered from the cold, industry brings her trophies, science her laws, art her progress, and, blending in one harmonious whole, invites your attention and promises to interest, to instruct, and to amuse you.

With these hopes, and an abiding faith in the future, the Trustees decided to hold the Thirteenth Industrial Exhibition. The space applied for and occupied, the sale of tickets, the generous contributions in every department, promises a successful issue. The Board of Managers are pledged to the most rigid economy. All partisan feelings and differences have been settled in favor of the best interests of the Institute. Peace, order, harmony, law and energy have joined hands and are pushing forward the good work, and with the support of the public there is no such word as fail.

Prof. George J. Gee then performed a solo on the Grand Organ, followed by another song from the Amphions. Barton Hill, Esq., then read in a masterly manner Frank Soulé's poem on "Labor." The Band rendered a medley of national airs, after which J. W. Winans, Esq., was introduced and delivered

THE ORATION.

GENTLEMEN OF THE MECHANICS' INSTITUTE—It is a source of mingled pride and gratulation to this fair city, which sits enthroned upon the margin of the

Occident, that an institution so beneficent as yours has grown up in her midst into such a magnitude of usefulness and power. What more exalted object can we desire to contemplate than a Mechanics' Institute, which seeks, by the force of combination and co-operative union, with patient, persevering and unselfish effort, to promote the welfare of the great industrial mass, to cherish art, to foster manufactures—to crown labor king. For a brief interval the community has abandoned the mart and the exchange—the brain has ceased to pulsate and the hand to toil in the pursuit of gain—that here, within these halls, the people may meditate upon your civic triumphs and exult in the achievements which your zeal and enterprise have wrought. The field in which you labor, although exhaustless, is not new or unexplored.

Beforetime, in the earliest annals of our race, while yet the world was young, the energies of man were concentrated on the discovery and the development of art. Not art alone in the loftier and more sublimated types of its ideal beauty, but universal art, including those more practical and useful forms wherein it manifested all the skill and cunning of the craftsman's hand. If Praxiteles could summon from the marble, and Zeuxis from the canvas, the grandest creations of the sculptor's and the painter's art, the genius of Dædalus was no less potently impressed on the rare mechanisms he contrived. The seven wonders of the world, those miracles of human power, still hold an undisputed sway over the works of each succeeding age. Nor do these grand examples stand alone. The might, the ingenuity, the skill of man, were no less prominent in the perfection which the useful arts attained. Many of these, although of world-wide notoriety and use, have been entirely lost. In vain do we strive to reproduce or rival the Tyrian purple or the Corinthian brass. The inscrutable texture of the ancient coins of bronze defies our craftiest attempts at imitation. No modern applications of skilled labor can construct an Appian Way; no nice artificer can fashion an Etruscan vase. Anon, when the shadows of the mediæval era had dispersed, and that long, starless night had ended in the dawn of art revival, the wood engraving of Durer and the superb devices of Cellini attained to such perfection as no later skill could rival. Yet the glory of the present age lies not in the pre-eminence which human genius can achieve, or has achieved, in isolated cases, but in the generalization and diffusion which a common desire for the cultivation, not less than the extension, of the mechanics arts, and the promiscuous pursuit of those high objects, have established among the masses of mankind. It was a world of theory, that ancient world, but this modern is a world of practice.

In that earlier day the alternative of human labor was not the price of human life; but now necessity prompts man to toil, and necessity is the mother of invention. Yet though this prompting originates in man's primal need for food and raiment, it ends not there. With the attainment of what is absolute for the support of life comes that "*sacra auri fames*," the inexorable greed of gain. Impelled by this, as a fresh and still more powerful incentive, the mind is constantly alive to plan, the hand to execute, those almost infinite contrivances which science and invention bring to light, and labor consummates, for the aggrandisement of the contriver, the comfort and enjoyment of the race. Hence railroads span the continents and telegraph structures stretch

through air and ocean until the very ends of earth are brought together, and the varied nations of the globe are growing homogeneous by fusion. Hence the machinery of iron and the artillery of steam are superseding with their swift results the slow and labored processes of manual employment. Hence new conceptions, new discoveries, clutching within their comprehensive grasp the little and the large, are modifying all our lives and changing the very conditions of our being. Alas, that learning and philosophy, and the devotion of the mind to literary themes, should be so grimly thrust aside by the spirit of utilitarianism as it rushes onward in its stern career. And ever, as the age swings on, the abstract hardens into the concrete. Over crumbling theories and broken speculations, over the ruins of metaphysical inquiry, over the reveries of the dreamer and the wrecks of the imagination, drives the iron car of progress. Yet we rejoice in our era, and expatiate admiringly upon the world's advancement.

“We are gods by our own reckoning and may well shut up the temples,
And wield on, amid the incense steam, the thunder of our cars;
For we throw out acclamations of self-thinking, self-admiring,
With, at every mile run faster—O! the wondrous, wondrous age!
Little thinking if we work our soul as nobly as our iron,
Or if angels will commend us at the goal of pilgrimage.
Why, what is this patient entrance into nature's deep resources
But the child's most gradual learning to walk upright without bane?
When we drive out, from the cloud of steam, majestic white horses,
Are we greater than the first men who led black ones by the mane?”

Enceladus, nerved by a renovated strength, renews his struggles, thrilling the nations with his smoke and flame. Can you forbear to note what strange mutations the prevailing tendencies are working in the operations of the mind? There is less heed of the Infinite in the more engrossing contemplation of the Finite. Thought is busied with research into those means whereby the material elements can be converted into increased facilities for aiding humanity in its pursuit of luxury and ease. The highest good for the greatest number is no longer a mere political maxim; it seeks to subject the whole realm of nature to the wants of man. Side by side with the heroes of the world—no less exalted in its annals; side by side with the great and giant intellects and the famous men of every age, stands the noble army of inventors, as hallowed in the popular regard as the noble army of martyrs.

It is not my purpose, nor is the time congenial, to discuss the subject of mechanics, or the mechanic arts, in learned and didactic disquisition. I have only to commend a topic which, through your expositional display, reveals its character and teaches its lessons by examples. Here, at this periodic and imposing demonstration, this carnival of labor, examples multiply on every side. The click of the needle, the rumble of the wheel, and the sonorous din of the machinery, all speak their usefulness “with most miraculous organs,” and tell us what results they are achieving for the welfare of the people in terms more forcible than scientific dissertation, in commendations more sincere than verbal eulogy, in tones more eloquent than rhetorical harangues. This life abounds in instances where the voices of nature and of art discourse

a language more significant than speech. I can only point to your strenuous efforts in the past and urge you forward in your noble work by hortatory words which, though they glow but feebly on the lips, are prompted by the heart.

As we wander through the spacious halls and labyrinthine avenues of that huge Pantheon of art which you have reared—as we listen to the clangor of its instruments of brass and the music that reverberates from its grand choir of iron voices—as we gaze upon the gorgeous panorama which these gathered works of art display in their variety, magnificence and beauty—as we stray through the gardens, teeming with fruit and flowers, luxurious with the foliage and growth of every clime—as we behold the costliest and rarest products of the loom, the multiplied creations of machinery, the strange and subtle emanations of inventive skill—as we survey the chambers quaintly ornamented with the garniture and decorations of the Gothic age, the age of the Renaissance, the ages of the Louis, and the showy reproductions of Versailles—as we contemplate the galleries whose walls are studded with the delineations of the pencil and the brush—as we linger near the splash of fountains or move amid the gay and brilliant throngs that congregate around us in the festive spirit of the time, we realize in that seeming Palace of Aladdin, lit with its thousand lamps and glittering with mechanic splendors, how close is the relationship between utility and beauty; how intimately the capacity and love of man for labor, and its infinite creations, have identified themselves with his esthetic nature.

California is a marvel to the nations, alike from her material formation and the suddenness with which she sprung into the ranks of empire. Between her cloud-capped mountain ramparts on the east, and that vast ocean, whose surges lash her western strand, she lies, in her sweet isolation, a world within herself, secluded from the world without. Far and wide, throughout her spacious confines, the mineral and vegetable kingdoms have developed their most opulent resources. No other single State or realm upon the globe displays the wealth of nature in such countless forms or such abundance and perfection. To gather from each portion of her wide domain, from her vine-clad hills and fruitful valleys, her copious productions, diversified by the variance of her latitudes and climates; to collect from everywhere within her borders the rarest fabrications of the artisan and craftsman, and present them in a sparkling mass upon these annual occasions, inspiring thus the zeal of emulation by the contagion of example, and bringing the whole people into a consciousness of the extent of these resources, is but the beginning of your work. Yours is a broader empire and a loftier ambition. By systematic combination and properly directed effort, it is your purpose to increase the demand for labor while multiplying its results; to elevate the condition, extend the usefulness, promote the prosperity of the producing classes. Organization is power. In stimulating industry, not merely through the premiums which you bestow upon successful competition, but through the richer rewards that spring from the notoriety and patronage which industry acquires by your exertions, you augment production. Increase of production generates extension of demand.

In sustaining the rights of labor you give new courage to its faltering steps,

new hopes to its desponding spirit. You lift it up to a closer equality with capital. You banish alike the arrogance of the consumer and the humility of the producer, so that the invidious and class distinctions of society are swept away, and the whole community—except where ignorance or vice creates depressions—is brought to stand upon a common platform. Well may the millions toil when roused to such a manly pride, when lifted to such lofty aspirations, when opened to such channels of success as your organization is creating. Even among the lowest ranks of men, these valued influences, while they ameliorate the condition, cultivate the moral sense and excite a thirst for knowledge. No stress of adverse fortune can force that man who clings unto his self-respect from realizing for himself and for his children the benefits of education. In furtherance of this great principle you have collected on your shelves a library which you are constantly augmenting, and which, for rarity, extent and value, has no superior perhaps, save one, on the Pacific coast.

We come to-day to offer our homage at your consecrated altar. Your institution, prevailing over all the discouragements and obstacles which attended its creation—those influences which have crushed so many a noble enterprise—has passed from the trials into the triumphs of time, and eventuated in a permanence of prosperity and power. Like Hercules struggling with the serpent in his cradle, you bore yourselves manfully, even in the very outset of your being; like him you have accomplished your twelve labors—those great industrial exhibitions which you have annually consummated during twelve revolving years. In this Institute, which has loomed up into such distinguished prominence and grand proportion, you have reared for yourselves a memorial more enduring than a monument of brass. Though the sword of the conqueror may fascinate and dazzle, yet it shines ever with a lurid and a baleful gleam. Your honors are gathered from the plaudits of the people as the reward of earnest and successful effort, and, like the sunshine, they enliven while they grow. Flinch not, nor falter in your high resolve, but remain forever faithful to your trust, and let that venerated maxim, which the centuries have made immortal, "*Improbis labor omnia vincit*," be graven in flaming characters upon your shield.

The Band then gave another selection; and the President announced that the doors of the Pavilion would be thrown open to the public at 7 o'clock in the evening.

ALPHABETICAL LIST

OF

EXHIBITORS AND ARTICLES EXHIBITED,

EXCEPT THOSE IN THE ART GALLERY.

Ackerman Bros...	Vienna Bent Wood Furniture.
Adams, A. P.....	Compressed Coffee.
Adams, L. D.....	Patent Car Coupler Model.
Ainsworth, D. H.....	Fire Kindlers.
Allen, Mr. (Allensdale).....	Assortment of Grapes.
Appleton, H. Mrs.....	Spray Work.
Arnold, N. S. & Co.....	
Spiral Pipe, Adjustable Elbows, Files, Nuts and Bolts, Pipe Cutting Machines, Decorated Toilet Work.	
Armstrong & Smith.....	Ale, Porter and Cider.
Arsher, J. M. (San Diego).....	California Bananas.
Atkinson, G. T.....	Turning Lathe and Fancy Turned Articles.
Bachelder Manufacturing Company (Napa).....	
"Iron Clad" self-regulating Windmill, Iron Tray Wheelbarrows.	
Bailey, Thomas & Co.....	Assortment of Wool.
Balny, A. J.....	Ostrich Feathers.
Baker & Hamilton....	Champion Mower, Jackson's light-weight Horse Fork.
Beamish, P.....	Gents' Furnishing goods, manufacturer of White Shirts.
Bequette, D.....	Plans for Mill Building.
Behrendt, H. & Co.....	Trunks, Valises, Satchels and Bags.
Benjamin, Henry A. & Co.....	Seltzer and Congress Water.
Bidwell, Gen. John (Chico).....	
Apples, Peaches, Pears, Plums, Figs, Wheat, Barley and Oats, Dried Fruits, Almonds, Corn, Squash, Watermelon, Chinese Polo Qua Oranges, Egg Plant, etc.	
Biglow, A. T.....	First Rice raised in California.

- Black, H. M. & Co.....
Coupe, Family Carriage, Rockaway, 3 Top Buggies, 2 Buggies, open; 1 Child's Coupe.
- Blakeley, Edward.....Mixed Dyes.
- Blockman & Cerf.....I X L Limestone and Lime.
- Bloom, Samuel.....Tanned and Colored Sheep Skins.
- Blowers, R. B. (Woodland).....
Black Hamburg, Zinfindal, Flame Tokay, Rose Peru and Black Malvoisie Grapes; Muscatel Godo Blanco Raisins; Dried Pears and Apples.
- Boca Brewing Company.....Boca Beer.
- Berry & Place.....
Double-acting Steam Pumps, Self-feeding Rock Drills, California Windmill and Model.
- Berryman & Doyle.....Wellington Coal.
- Best, Daniel (Albany, Or.).....
Patent Adjustable Washing Machine and Clothes Wringer.
- Bofinger, J.....Specimens of Metal Spinning.
- Bowdoin, L. M.....
Vermin Fumigator Kitchen Cabinet, and Rotary-top Kitchen Cabinet Tables.
- Borkheim, H.....Gents' Patent Drawers.
- Bothin, H. E. Mrs.....Mills' Cream Yeast Powder.
- Bowen Bros.....Premium Yeast Powder.
- Bradford, J. B. (Courtland).....3 bottles Port Wine.
- Brehm, R. W.....Turning Lathe, Fancy Turned Articles.
- Brown, G. T. (Stockton).....Improved Hay Carrier.
- Bryant, Dr. F. G.....Patent Fire Escape.
- Briggs, J. W. (San José).....Hungarian Plums.
- Britton, Mrs.....Patch-work Quilt.
- Britton, John (San José).....Dried German Prunes.
- Brown, Chas.....Ranges, Stoves and Tinware.
- Brown, Dora A. (San Leandro).....Silk Bed-spread.
- Browell, John.....Patent Chimney Flues and Tops.
- Burr, C. H. & G. W.....Weather Strips.
- Burton, W. H.....Awnings.
- Burton, Mrs. W. H.....Bird-cage Awning.
- Bush & Scudder..Sanitary Goods, Sinks, Water-closet Filters, Bath Tubs, etc.
- Burrage, C. R.....California Root Tea.
- California Furniture Company.....
Parlor, Bedroom and Dining-room Furniture, Window Drapery, etc.
- California Bellows Manufacturing Company.....
Sides of Leather and Bellows, assorted sizes.
- California Paint Company.....
Averill Mixed Paint, Copper, Plumbago, and China Gloss Paint.

- California Paper Company... ..
 Printing Paper, Straw Wrapping Paper, Hardware Paper, Straw Board
 and Barrel Board, Butter Paper.
- California Spring Bed and Mattress Factory.....
 Crandall Spring Bed and Mattresses.
- California Wire Works Wire Goods of every description.
- California Raisin and Fruit Company.....
 Apples, Pears, Plums, Prunes and Peaches, preserved by Mefford Pro-
 cess.
- California Electrical Works.....
 Telegraph Instruments, Fire Alarm Apparatus, Electric Bells, Burglar
 Alarms, Electro-Medical Apparatus, Induction Coils, Geissler Tubes, Sam-
 ples of Gold, Silver, Nickel and Copper Plating and Electro-Bronzing.
- Cantel, H. Mrs.Laces Cleaned.
- Carvill Manufacturing Company..... Hacks, Coupes and Buggies.
- Church & Co.....Horsford's Bread Preparation.
- Choynski, I. N.....School Furniture, Old Books and Stationery.
- Chronicle, San Francisco.....Stereotype Plates.
- Cillegan, W. Large Mushrooms.
- Ciphers, D. S.....Pop-corn.
- Clock, A. (Napa).....Hops.
- Clark, G. W.Paper Hanging and Wall and Window Decorations.
- Clark, T. S.....Iron Bedsteads and the Union Wire Mattresses.
- Coe, O. R.....Mann's Reactionary Lifter and Fairbanks' Scales.
- Coldwell, G. W. Mrs... ..Rag Mats.
- Collier, W. B.....Camp Folding Stoves.
- Colombo (Italian) Market.....Vegetables.
- Conrad, D.....Peanuts, Walnuts, Hard and Soft-shell Almonds.
- Cook, H. N.....Belting and Hose.
- Cooper & Co.....Floroscopes and Optical Goods.
- Corville, Emerson & Co.....Canned Salmon.
- Cotter, F. G. Mrs.....Chemically Preserved Fruits.
- Covert, H. M.....Single and Double Sack-holders.
- Cox, T. & W.....Bird Feed and Gravel, Gold Fish Food.
- Crosly, G. S.....Self-raising Bread Preparation.
- Cuche, F. H.....Tobacco Plants.
- Cunningham, G. L.....English Bicycle.
- Curtaz, B.....Upright Pianos, Square Pianos and Organs.
- Cutting & Murray.....
 Falk's Milwaukee Beer, Swan Ale, Woman Suffrage Stove Polish, Mc-
 Laren Mills Oatmeal.
- Campbell, W. H.....Boiler Composition, Eucalyptus Oil and Preparations.
- Carlson & Currier.....Assortment of Sewing Silks and Embroidery Silks.
- Cattarini, E. J. Watermelon.
- Daggart, John.....Klamath Mine Quartz.
- Daniels, John.....Granite and Marble Mantels.

- Danicheff Glove Factory..... Glove Material, Gloves and their manufacture.
- Dannenbaum, M. R.....Millinery Goods.
- Davis Bros.....Fancy Goods, Plated Wares, Leather Goods, Clocks, etc.
- Davis, George A.....
Agricultural Implements, Plows, Rakes, Cultivators, Mowers, etc.
- Davis, Horace W. & Co.....
Crushed and Hulled Wheat, 4 brands Flour and Graham Flour.
- Davis & Cowell.....Lime and Limestone.
- Day Bros. & Co.....Incubator.
- Deaves, C.....Wood Engraving specimens.
- De Courcy, E.....Ironing and Polishing Machines.
- Delisdinere, Mme.....Hair Restorer and Cosmetics.
- Denniston, E. G.....
Silver Plated Wares, large Amalgamating Plates, Copper—Silver Plated.
- Detrick, E. & Co.....
Tents, Bags, Awnings, Awning Goods, and Sewing Machines.
- Dewey & Co.....
Mechanics' Fair Daily, bound files of the Mining and Scientific Press and Pacific Rural Press, samples of Patent Elastic Newspaper File-holders, bound volumes of the Mechanics' Fair Daily.
- Dewey, R. E. Mrs.....Hand-knit Counterpane.
- Doble, A.....Steel and Cast Steel Tools, and John Wright's Picks.
- Dodge, C. H.....Oriental Pearl Renovator and Cement.
- Dodge & Pierce.....Amateur Printing Presses and Sample Cards.
- Donoghue, Mrs.....Cosmetics and Toilet Articles.
- Doran, Mrs.....Log Cabin Quilt.
- Deppen, Mrs.....Fine Embroideries.
- De Ronceray, L. & Co.....Display of Pictorial Advertising Cards.
- Dreyfoos, Prof. H.....Penmanship.
- Duffy, T.....Rustic Work.
- Dunn, H. D.....
Students' Lamps, Students' Slide Lamps, Students' Hanging Lamps, and Glass Night Lamps.
- Eaton, Charles.....
Estey and Holmes Organs, Hazelton Bros. Upright and Square Pianos.
- Engine, The Pavilion.....
The great engine that runs the machinery of the Fair, now the property of the Mechanics' Institute, was built by the Fulton Foundry of this city, and is of 128 horse-power, 18-inch cylinder, 36-inch stroke, 16-foot fly-wheel, making 65 revolutions per minute.
- Falkner, Bell & Co.....8 kinds of Wool.
- Finley, R.....Dr. Wolcott's Pain Paint, Catarrh Annihilator.
- Fenn, F. G. W.....Gold Dust Polish, Beef Cutter and Vegetable Slicer.
- Fischett, S. D. Mrs.....Turkish Rug.
- Foster, S. & Co.....Condensed Eggs and Mince Meat.

- Fish, A. L. & Co.....
 Apple Grinders and Cider Press, Steam Fire Engine—Clapp & Jones, builders.
- Flynn, John..... Horse Shoes and Spurs.
- Follansbee, George S.....
 Follansbee Pump Company's Patent Double Propeller Pump.
- Forest, C. T.....Glass Ball Castor (Parent's patent).
- Freeman, M. L. Mrs.....Rag Rugs.
- Fromberg, E.... Toy Telephones.
- Fruling, W.....Gang Plow.
- Garratt, W. T. & Co.....
 Bells, Globe Valves, Steam Gauges and Whistles, Oilers and all kinds of Brass Goods, Steam Traps, Hooker Patent Steam Pumps, Water and Gas Gates, Portable Engine and Boiler, Brass Cannon.
- Getz-Lucas, Anna Mme.....Wax Fruits and Preserved Flowers.
- Georgiani, A.....3 kinds of Pears, 4 kinds of Apples, Oranges, Cocoanuts.
- Giant Powder Company.....Hercules and Giant Powder.
- Gilbert & Moore.....
 Eureka Kitchen Tables, Patent Folding Table, Iron Bedsteads, Morton's Patent Desks, Writing Tables and School Furniture.
- Giovani, Daniel.....Charcoal.
- Given, John.....Wheat Samples.
- Gladding, McBean & Co.....Sewer Pipe, Chimney Pipe and Tops.
- Globe Gaslight Company...
 Globe Gas Burner, Shaler's Patent Safety Cans, Shaler's Self-generating Carbureters.
- Goldman, A.....Cements, Lucine Oil, Laundry Liquid Blue.
- Golden Gate Fruit Packing Company (San José)..... Preserved Fruit.
- Goodrich, Taylor.....Ranges, Stoves, Oil Stoves, etc.
- Good'nough, A. M.....Bradbury Pianos, and Smith's American Organs.
- Gordon, James E. & Co.....
 Show Card Handles, Weather Vanes, Locks and Axes, Chain Forge and Tools.
- Gordon, H. E. Mrs.....Crochet Bed-spread.
- Grave & Co.....
 Coupe, Oppenheim Buggies, finished; Oppenheim Buggies, with Tops; Oppenheim Buggies, inlaid cloth; business Wagon.
- Grant, D. W. & Co.....Tubular and Angular Harrows.
- Gray, M.....
 Steinway Pianos, Grand, Square and Upright, Brass and Stringed Instruments.
- Gump, S. & G.....Mirrors, Pictures, Easels, Frames, Tables, etc.
- Gutta Percha Rubber Company.....Hose Belting and Packing.
- Hager, J. Mrs.....
 Specimens of Hand and Machine Sewing without attachments.

- Hall Safe and Lock Co.....Fire and Burglar Proof Safes.
 Hammam Baths.....Turkish Kiosk.
 Hallidie, A. S. . . .Wire Ropes, Cloths, Netting, Wire and Wire Goods, etc.
 Halpruner, Dr. W. S.....Patent Healing Salve.
 Hammer, L. K.....Chickering Pianos—Square, Grand and Upright.
 Hansen, J.Patent Railroad Grip.
 Hansen, Richard C. & Co.....
 Blocks, Lignum Vitæ, Patent Sheaves, Steel and Brass Patent Bushes.
 Hartman & Freese.....Oscillating Swings.
 Hause, R. W.....Photographs.
 Haver, P. J.....Band Saw, Fine Sawing.
 Haverside, John.....Silver Plating and Cleaning Fluid.
 Hall, E. L.....Rustic Work.
 Hawkins & Cantrell.....Patent Elevator.
 Hawley, D. N., Agent.....
 Upright Monitor Engine, Archer Rake, Meyers' Gang Plow, Newton
 Wagon, Howe's Dormant Scales, assortment of Scales, etc.
 Harvey, Julia Mrs.....Beaumondaire.
 Hall, C. R.....Upright Pianos (California manufacture).
 Harlow, Mrs.....Crochet Bed-spread.
 Hartshorne & McPhun.....
 Window Shades, Opaque Shades, Holland & Hartshorne Self-acting
 Shade Roller.
 Hawley, Marcus C.....
 Taylor Rake, Cider Press, Separator, Corn Sheller, Subsoil Plow, Deere
 Plows, Reapers, Wagons, Scott Engine, Lawn Mowers.
 Hayes, D. D.....Fire Escape Truck and Hose Clamps.
 Heald's Business College.....Telegraph Instruments and Apparatus.
 Hermann, P. A.....Improvement on Carriage and Wagon Wheels.
 Heinz, Mrs.....Bed-spread.
 Heinze, L.....Glass Blowing, Blown Glass, etc.
 Hendy, J. . . .Ore Feeders.
 Hemme & Long.....Upright Pianos (California manufacture).
 Hepburn, Ward A.....
 Proctor & Gamble's Soaps and Candles, Dooley's Yeast Powder, J. J.
 Gilbert's Starch, Fields & Evans', Day & Co.'s Oysters, Frazer's Axle
 Grease, Lima Beans.
 Herman & Sexton.....Self-supporting Sewer.
 Hess, Lewis.....Damiana Bitters, Fluid Extract.
 Hill, Samuel.. ..
 White, Florence, Peerless, New Home, Weed, Hill, Wardwell, Dauntless
 and California Sewing Machines, Florence Oil Stoves.
 Hill, M. E. Mrs.....Rugs made from Rags.
 Hinckley, C. D. & E.....Star Clipper Spring Beds.
 Hickson, Justi & Co.....
 Two kinds of Peaches, Hungarian Prunes, Coe Golden Drop Plums,
 Petite Prune de Agen.

- Hickey, P. W. Mrs.. Sea Moss, Shells, Skeleton Leaves, Wool and Wax Work.
 Holbrook, Merrill & Stetson.....
 Ranges, Stoves, Japan, Granite, Perfection, Nickel-Plated and Tinned
 Wares.
 Hook, E.....Dining and Kitchen Tables.
 Hopkins, Taylor & Co.....Atmospheric Copying Press.
 Hottua & Hanson.....Buggy.
 Hume, R. D. & Co.....
 Magnolia Hams, Aurora Beer and Salmon, Canned Goods, etc.
 Hutchinson, James.....Plants and Flowers.
 Huntington, Hopkins & Co.....
 Exhaust Fan and Cupola Blowers, Rider Compression Engines, Forge
 Blowers.
 Hutchings, J. M.....
 Cabinet made of California Woods, Cones and Seeds of Big Trees, Bark
 and Chips of Big Trees, Picture of (Dead Giant) Tree.
 Jackson, R. W.....Abalone Shell Jewelry.
 Johns, H. W.....Asbestos Paint and Roofing.
 Johnson, J. C. & Co.....Manufacturers of Harness Leather.
 Jones, A. L.....Patent Self-regulating Steam Trap.
 Jones, William.....
 Enameled Tiles, Hand Painted Art Tiles, Encaustic and Plain Floor
 Tiles, Flooring, Hall and Wainscot Tiles.
 Joseph Bros.....Youths' and Boys' Clothing.
 Journal of Commerce.....General display of the products of California.
 Jung & Utz.....Camelo Bay Coal.
 Kellett, Samuel.....Orange Trees.
 Kelly, P.....Boots and Shoes.
 Kelly, James.....Improved Grunsom Adjuster.
 Keogh, John.....Moss, Feathers, Curled Hair and Upholsterers' Tow.
 Ketchen, J. E.....Rubber Printing Stamps.
 King, D. J. & Co.....Automatic Fountain Pens.
 King, M. J. Mrs.....Worsted Work Mats.
 Kitzmuller, M.....
 Rockaway, Cabriolets, Side-spring Buggies, Side-bar Buggy, Baker
 Wagons.
 Knowlton, J. J.....Inks and Mucilage.
 Koehler & Ritter.....Silverware.
 Kohler & Chase.....
 Decker's Grand, Square and Upright Pianos, Fisher's Upright Pianos,
 Emerson's Square Pianos, Mason & Hamlin's Organs; Brass, Reed and
 Stringed Instruments, etc.
 Kruttschmitt, Annie.....Bed-spread and Pillow Cases.
 Kuhling, A.....Bedsteads and Wire Mattresses.
 Lake, H. & Co.....Shoe Blacking.

- Lancaster & Northon.....Custom-made Clothing.
- Landers, R. R.....Model of Windmill, Self-regulating.
- Lansberger, I. & Co.....
- Dr. Henley's IXL Bitters, Dew of the Alps Bitters and Champagne.
- Larkins & Co.. ..
- Coupelets, Ladies' Phaeton, Extension Top Rockaway, Side-bar Rockaway, Sulky, Single Buggy, Piano Box Buggies, Thoroughbrace Wagon.
- Lejeal, J. J. & Co
- Steck's Square and Upright Pianos, Sohmer's Square and Upright Pianos.
- Levy, Oscar S.....Ranges, Stoves and Glory Reservoirs.
- Lewis, Oscar.....Iron Vases and Pedestals.
- Liddle & Kaeding.....Guns, Pistols and Fishing Tackle.
- Liesenfeld, P.....Billiard, Bagatelle and Pool Tables, Billiard Goods.
- Light, W. W. (Sacramento City).....Bee Hive and Bees.
- Linforth, Rice & Co
- Enterprise Windmill, Perkins' Patent, "Blymyre Bells"—Church and School, Fire Alarms.
- Lipman, M. Mrs.....
- Turkish Tidies, Turkish Table Covers, Crochet Tidies, Crochet Spreads.
- Logan, M. H.....Hops.
- Lorquin, E. F.....Taxidermic specimens.
- Low & Chartrey.....Patent Washing Machine.
- Lyon, W. J. Mrs.....Log Cabin Quilts.
- Mahoney, W. H. & Co...Hand Painted Tile Flower Box, Marble Top Table.
- Mackey, Letitia M.....Patch-work Quilt.
- Mackey, Alex.....Cocoa Matting and Fibre, Rag Carpet and Carpet Warps.
- Main & Winchester.....Bridles, Saddles, Whips, Harness, Robes, etc.
- Mallon, John.... Curved Mirrois, Stained, Bent, Cut and Embossed Glass.
- Manon, S. S. Mrs.....Crochet Buggy Robe.
- Mau, Albert & Co.....Teas, Soap and general assortment Groceries.
- Marion, Henry.....Folding Tables.
- Martin, W. H.....California Roofing Slate.
- Marwedel, C. F.....
- Mechanics' and Moulders' Tools, Set Screws and Cast-steel Dogs, Foot Lathe.
- Maguire, F. M. Mrs.....Tatting and Crochet Work.
- Matthai, R.....Turning Lathe and Printing Press.
- McFarland, J. M.....Model of Stamp Mill.
- McGuire, Arthur.....Ornamental Posts.
- McKibbin & Pettison....Iron Wheelbarrows.
- McLean, A. A.....
- Perforated Frictional Belts and Abdominal Support; also, California Elastic Truss.
- McDonald & Johnson.....Stylograph.
- Meat and Fish Packing Company.....
- "Ochsenmaul Salat" (preserved beeves' heads, tongues and palates).

- McNalley, T.....Sacramento River African Muskmelon.
Mendenhall, James MPatent Gate and two Models of Gates.
Meild, R.....Case Dulcimers.
Merrill, P.....Model of Carpet Beating Machine.
Myers, A.....Koumiss (consumption cure).
Miller, M. A. Mrs.....Millinery Goods.
Miller, J. F.....Plants and Flowers.
Miller, J. M.....Side Plated Show Case.
Moeser, J.Instrument Strings.
Mohr, G.....Rustic Fountains.
Moore, H. A. Mrs.....Hair Restorative.
Morning Call.....Stereotype Plates.
Montague, W. W. & Co.....
 Ranges, Stoves, Marbleized Iron, Mantels, Japan, Granite, Planished
 Copper, Nickel Plated Tinware, Fire Grates, Irons, Perfection Oil Tanks,
 etc.
Morris & Son.....Pneumatic Bells, Bronze Lockware and Hinges.
Morris, Thomas B. & Co.....Seattle Coal.
- Nathan & Dreyfuss.....Brass Injectors and Brass Ejectors.
News Letter, San Francisco.....
 Eighty Pictures (Men we Know) and News Letter.
Newell, Mrs.....Braided Mats.
Newton, G.....Stylograph and Day's Automatic Incubator.
Nicoll, A.....Cloths and Custom-made Clothing.
Nutting & Son.....
 Scotch Tubular Iron Harrows, Iron Harrows on Wheels, Gang Plow with
 Slip Shear, patent applied for, Seed Sower.
- Oakley, A. D.....
 Rubber Printing Stamp, Printing Wheels, Movable Rubber Type, Pocket
 Fountain Stamp, Black Ink for Rubber Stamps.
Okerlund, P.....Five Models of Fifth Wheel.
Osborn & Alexander..Mechanics' Tools, John Barnes' Foot Power Machinery.
Owens, J. B.....
 Pacific Pottery, Chimney Pipe, Sewer Pipe, Stone and Earthenware, and
 Fire Brick.
- Pacific Fruit and Vegetable Drying Company.....
 Fruit and Vegetable Drier and Fruits.
Pacific Lamp and Reflector Factory.....
 Lamps and Reflectors, Ornamental, Stamped, Spun and Cast Zinc, Metal
 Spinning.
Pacific Boring Company.....Great Western Well Auger.
Pacific Oil Stove Company.....Oil Stoves.
Pacific Vinegar Works.....Display of Vinegar.
Paillard & Co.....Musical Boxes.

- Pacific Rolling Mills.....
- Bolts, Nuts, Screws for House Raising, Merchant, Railroad, Square, Shafting and Beam Iron, Turnbuckles, Switches, Safety Clutch, Chains, etc.
- Pacific Saw Manufacturing Company.....
- Circular, Mill, Muley, Drag, Crosscut, Pit, Felloe, Scroll, Butcher-Compass, Hand Pruning Ice and Band Saws, Saw Mandrels, Fleshing Knives, Plastering Mitering Rods, Reaper and Mower Sections, etc.
- Palmer, H.....California Port and Sherry, California Wines of all kinds.
- Parson, W. D. (Colorado).....Wind Engine.
- Parke & Lacy.....
- Direct Acting Plunger Pump from Sutro Tunnel, Hoisting Engine, Hot Air Engine.
- Paul, A. B.....Knight's Water Wheel.
- Pease, C. F.....Model Railroad Grip.
- Pedler, Thomas C.....Empire Coal.
- Pendergast & Smith.Propeller.
- Pfister, J. J. & Co.....Knitting Machines and Goods.
- Phillips, J. S.....Prospectors' Assaying Apparatus and specimens.
- Plummer, C. B.
- Family Fruit Drier Case samples. One model Factory Drier.
- Plum, Chas. M.....Carpets, Rugs, Window Drapery and Furniture.
- Poheim, Joe.....Cloths and Custom-made Clothing.
- Potrero Distilling Company.....Compressed Yeast.
- Prescott, Scott & Co.,.....
- Three sizes of Vertical Engines, with boilers and pumps combined; four sizes of Vertical Engines; six sizes of Horizontal Baby Hoisting Engines; two sizes horizontal semi-portable Hoisting Engines, with Locomotive Boiler and double reels; two sizes of Air Compressors; 1 cut Spur Gears.
- Preble & Co.....Pitcher & Palmer Axle Grease.
- Progne, G. M.....Water Tanks.
- Protron, Chas.....Gas Stoves.
- Randall, J.....Eucalyptus trees and Extracts.
- Randolph Saw Company.....Circular Saws, Saw Teeth.
- Ransome, Ernest L.....
- Artificial Stone Fountains, Vases, Cemetery Improvements, etc.
- Ransome, E. L.....Head & Sims' Threshing Machine Engine.
- Renling & Seyd.....Refrigerators
- Renton Coal Company.....Redwood pierced by Woodpeckers, Renton Coal.
- Reynolds, Rix & Co.....
- Ingersoll's Rock Drill, Dry Air Compressors, King Engines, Miners' Horse Power.
- Rhodes & Wason.....Borax and Salt.
- Ridgeway, C. W.....Single and double Spring Mattresses.
- Rieger, P. & Co.....Flavoring Extracts, Sodas and Lemon Sugar.
- Roach, John.....Mathematical, Optical and Surveying Instruments.

- Robbins, F. A.....Canners' Press and Set Jewelers' Rolls.
- Robert, Geo. F.....French and Fancy Candies.
- Roman, A. & Co.....Books, Cards and Stationery.
- Rochicioli, R. F.....
- Statuary and Ornamental Bronze work, Gold and Silver Plating work,
Patent Champagne Faucet, Nickle Plated.
- Ross, M. (San José).....Triple Plow.
- Rottanzi, G.....Long Life Bitters.
- Russell, J. J.....Galvanic Appliances.
- Rustic Factory.....Hall's Rustic Work.
- San Francisco Gaslight Company.....Preparations of Ammonia.
- San Francisco & Pacific Glass Works.....
- Newman's Improved Box Demijohns, general assortment of Bottles and
Glassware, all kinds and colors.
- Sabatie, P. S.....French Corporal Perique Smoking Tobacco.
- Sabatie, Suich & Co.....Geo. F. Hooper's assorted Wines.
- Sadler & Co.....Case Novelties.
- Salt Company, Union Pacific.....Sun brand and Banner brand Salt.
- Samuels, D.....Laces.
- Sanborn, S. H.....Express Wagons.
- Sanders & Co.....Brewer's Kettle, Copper Still.
- Sanger, L. P. Mrs.....Knitted Work.
- San José Fruit Packing Company.....Preserved Fruits.
- Saywell, Thomas.....Cut Flowers.
- Schultz & Fischer.....Silverware.
- Scholtz, S.....Stain Decoction.
- Sciallero, Mme.....Artificial Flowers, Bouquets, Wreaths and Baskets.
- Selby Lead and Smelting Company.....
- Assorted Lead Pipe, Shot, Sheet and Pig Lead.
- Shepman, W. E.....Silver Plated ware.
- Sheldon, Mark.....Davis Sewing Machines and Work.
- Shew, Myron.....Madame Demorest's Cut Paper Patterns.
- Shuster Bros.....Mann's Patent Chimney.
- Small, I. H.....Wood Planers.
- Smith & Burkhardt.....Skeleton Wagon, and Buggy.
- Smith, Osborn & Co.....General groceries—Starch, Corn, Tobacco, etc.
- Smith, Emma Mrs.....Quilt.
- Solly, S.....Cement.
- Sornin, A.....Assorted Gas Stoves.
- Souther, J. N. & Co.....Green Ginger Brandy, Bennett's Bitters.
- Spear, Meade & Co.....Los Angeles Honey.
- Spaulding, N. W.....Circular Saws with patent Inserted Tooth.
- Sresovich, Luke G. & Co.....
- Fruits, Apples, 5 kinds Pears, 3 kinds Mazatlan Limes; also, Bananas
and Cocanuts.
- Standard Soap Company.....Toilet and Staple Soap.

Starr & Mathieson.....	Samples Regulus Antimony.
Standard Oil Company.	Pearl Oil.
Steiner, A. J. (Yolo).....	Samples of Wheat.
Sterling, W. A.....	Model of Quicksilver Condensers.
Stivers, H. F.....	Pacific Coast Woods of all kinds.
Stockton, E. A.....	Kitchen Tables.
Storey Bros. (St. Helena)	Hops.
Stout, A. A.....	Poulett's Atmospheric Letter Copying Press.
Sweetser & DeLong.....	Cider and Vinegar.
Sweepstake Plow Company.....	
Hill's Improved Eureka, Sulky, Grange and Steering Gang Plows; also Sulkies, Buggies and Wagons.	
Strozynski, Stanislaus.....	Human Hair, and Hair Dressing.
Swan & Brook.....	Illuminating Letter and Sign Painting.
Tatum & Bowen.....	
Albany Lubricating Compound and Cups, Patent Chisel Tooth Saws.	
Tay, George H. & Co.....	
Ranges, Stoves, Granite, Japan, Planished and Tinware; Copper Boilers, Sewing Machine and Jig Saw Motor Power, Cheese Vat, etc.	
Taylor, M. C.....	Specimens of Chromite and Magnetite.
Taylor, S. P. & Co....	Printing, Blank, Hanging, Manila, Tissue Paper, etc.
Taylor, A. C.....	Excelsior Range and Gas Stoves.
Taylor, F. B. & Co.....	California Coal Oil, Sapolio and White Lead.
Teubner & Hoffman.....	Silver Plated Show Cases and Aquarium.
Thornton, John.....	Fancy Gaiters.
Thompson, Geo. C.....	Soda Fountains and Apparatus.
Toohy, C. & Co.....	
Coffee, Tea, Spices, Extracts and Oils, general assortment of Groceries, Noble's Whiskies, and Liquors of all kinds.	
Tracy, J. P. & Co.....	Printing Press and Material.
Tracy, F. P. Mrs.....	Rag Mats.
Trumbull, R. J. & Co.....	
Garden Seeds, Antique Pottery, Fancy Flower Pots and Trellises.	
Truworthy, F. M.....	Stencil Plates and Rubber Stamps.
Tustin, W. I	Irrigating Pumps.
Tyler, Mary Mrs.....	Patch-work Quilt.
Upton, E. A	
Cut Flowers	
Van Blarcom, A. L.....	Southwick's Turbine Windmill.
Van Wart, Wm. (Butte County).....	Samples of Wheat.
Vogele J. & Bro.....	Assorted French Mixed Candies.
Vulicevich, M.....	Alligator Pears.
Wakeling, L. P. Mrs. & Co..	
Blood Purifier, Elixir of Life, and Magnetic Oil.	
Wangenheim, Sol.....	Mixed Pickles.

Ward, W. M. & Co	Gilt Edge Tonic.
Wakefield Rattan Company:.....	Rattan Furniture.
Warren, Col.....	Flour, Rice, Flax, Hemp, curiosities, etc.
Warren & Co	Eucalyptus Tree Preparations.
Washington Irrigated Colony (Fresno County).....	Fruits, Grains, etc.
Waterhouse & Lester.....	Carriage Material.
Webster, J. R.....	Model of Wave Power.
West Coast Furniture Company.....	
Bedroom, Office, Dining-room and School Furniture.	
Weeks, L. F. & Co.....	Oakum.
Weichart, J.....	
Hay Cutters, Reaper Knives, Edged Tools Safe, and Lawn Rakes.	
Weister & Co.....	1,407 Useful Inventions.
Wells, L. Mrs.....	Japan Silver Polish.
Whitman (inventor) E. J. Mrs.....	Kettle Scraper.
White, Capt.....	Model Patent Fire Patrol Wagon.
Whittier, Fuller & Co.....	Pioneer White Lead.
Wheeler, S. H.....	Carbon Engine.
Willard, Z. A.....	Ore Roasting Furnace.
Wilson Sewing Machine Company.....	Machines and Sample Work.
Wilson, T. A.....	Improved (Little Chief) Washing Machine.
Wilcox & Gibbs Sewing Machine Company.....	
Automatic Sewing Machine and work.	
Wiley, James.....	Buggy and Spring Wagon.
Woerner, David.....	Wine Casks.
Wood, Benjamin.....	Patent Portable Houses.
Woodward, R. B.....	
Birds and Animals Stuffed, Tropical and Ornamental Plants.	
Worth, W. E.....	Stationary Washbowl Trap.
Yates & Co.....	Lamps, Oil Blacking and Axle Grease.
Young, Mme.....	Toilet Articles.
Zolezzi, Nicolo.....	Wooden Puzzle.

CATALOGUE

OF THE

ART GALLERY.

ROOM 1.

Under the supervision of a Committee from the San Francisco Art Association, consisting of J. W. RIX, R. D. YELLAND, VIRGIL WILLIAMS, BENJ. SEARS. J. R. MARTIN, Superintendent.

OIL PAINTINGS.

Title and Contributor.	Artist.
Fruit Piece.....	Samuel M. Brookes.
Irving M. Scott.	
Smoked Herring.....	Samuel M. Brookes.
Samuel M. Brookes.	
Smelts....	Samuel M. Brookes.
Irving M. Scott.	
Portrait.....	D. Tojetti.
D. Tojetti.	
Cat and Fish.....	Samuel M. Brookes.
Portrait.....	Miss E. Williams.
Miss E. Williams.	
In the Adirondacks.....	R. D. Yelland.
R. D. Yelland.	
Cloud's Rest.....	Wm. Hahn.
Wm. Hahn.	
Astray.....	R. J. Bush.
J. R. Fitch.	
Bayou La Fourche, La. (Moonlight).....	M. Straus.
M. Straus.	
Portrait.....	S. W. Shaw.
S. W. Shaw.	

Title and Contributor.	Artist.
Drifting About..... Irving M. Scott.	G. J. Denny.
California Harvesting, Alameda County..... M. Straus.	M. Straus.
Portrait..... Mrs. P. Mezzara.	E. Narjot.
Gaoth, Bein Isle of Anan, Scotland..... J. B. Wandesforde.	J. B. Wandesforde.
Quilting Party..... Irving M. Scott.	J. Wood Perry.
Purdy Pasha Gov. Purdy.	S. W. Shaw.
Portrait..... S. W. Shaw.	S. W. Shaw.
Knights Valley Virgil Williams.	Virgil Williams.
Salmon..... Col. Jackson.	Samuel M. Brookes.
Reveries of an Artist..... Dr. C. T. Dean.	Jules Tavernier.
Mount Shasta..... Thomas Hill.	Thomas Hill.
Fish..... Col. Jackson.	Samuel M. Brookes.
Point Lobos, Monterey..... J. R. Fitch.	M. Straus.
Fruit Piece..... Miss E. Williams.	Miss E. Williams.
Napa Valley..... Capt. Jas. McDonald.	W. L. Marple.
Nuremberg (street)..... M. Straus.	M. Straus.
Portrait..... F. M. Pebbles.	F. M. Pebbles.
Erin..... E. Narjot.	E. Narjot.
California Indians..... Irving M. Scott.	Chas. Nahl.
The Broken Bridge..... Irving M. Scott.	Jules Tavernier.
Gil Blas..... Firmin Bouvy.	Firmin Bouvy.

Title and Contributor.	Artist.
Portrait.....	F. M. Pebbles.
F. M. Pebbles.	
Cypress Point, Monterey.....	Jules Tavernier.
Dr. Joseph E. Pissis.	
Almeh.....	J. Humphrey Moore.
J. Humphrey Moore.	
A California Valley.....	Virgil Williams.
Virgil Williams.	
Arabian Steed and Lady.....	Chas. Nahl.
Arthur Nahl.	
Scene from Figaro.....	Firmin Bouvy.
E. R. Taylor.	
High Sierras.....	Thomas Hill.
Capt. J. M. McDonald.	
Reverie.....	E. Narjot.
Pietro Mezzara.	
Fruit Piece.....	Thos. Hill.
S. P. Dewey.	
Portrait.....	Jos. Strong.
Bohemian Club.	
Still Life.....	Samuel M. Brookes.
Samuel M. Brookes.	
Still Life.....	Samuel M. Brookes.
Samuel M. Brookes.	
Cliff House.....	G. Brock.
Dr. Boyson.	
Fish.....	Samuel M. Brookes.
Irving M. Scott.	
Greenland's Icy Mountains under the Midnight Sun, off the Greenland Coast.....	Wm. Bradford.
Irving M. Scott.	
A Storm on the Atlantic.....	Jas. Hamilton.
Tiburcio Parrott.	
Fish.....	Samuel M. Brookes.
Samuel M. Brookes.	
Scene near Mt. Diablo.....	R. D. Yelland.
R. D. Yelland.	
Napa Valley.....	Wm. Keith.
Jabez Howes.	
A Flemish Girl's Defense of Her Independence, at the Times of the Spanish Domination.....	Firmin Bouvy.
Firmin Bouvy.	

Title and Contributor.	Artist.
Dog's Head..... M. Lotz.	M. Lotz.
The Huntsman..... C. F. McDermott.	E. Vayion.
Pasture..... E. Wyttenbach.	E. Wyttenbach.
Portrait..... J. F. Jackson.	J. F. Jackson.
Cypress Point before '49..... M. Straus.	M. Straus.
Winter in New Hampshire..... Capt. J. M. McDonald.	Thos. Hill.
Near Saucelito..... Thos. Ross.	Thos. Ross.
Autumn Sunset..... Mrs. Judge Sunderland.	J. W. Rix.
Wood Scene..... Nellie Hopps.	Nellie Hopps.
Rustic Germany..... Jabez Howes.	Harvey Young.
A Foggy Sunset..... Benj. Sears.	Benj. Sears.
Cypress Grove, Monterey..... Jules Tavernier.	Jules Tavernier.
Spring..... Mrs. Judge Sunderland.	J. W. Rix.
Outside the Heads..... Thos. Ross.	Thos. Ross.
Flowers..... Miss E. Williams.	Miss E. Williams.
A Quiet Nook..... Mrs. Judge Sunderland.	J. W. Rix.
California Antelope..... Arthur Nahl.	Chas. Nahl.
Salmon Trout..... Samuel M. Brookes.	Samuel M. Brookes.
Portrait..... A. Vargas.	A. Vargas.
He Loves Me, He Loves Me Not..... Irving M. Scott.	E. Narjot.
Outside Sandy Hook..... C. D. Shed.	C. D. Shed.

Title and Contributor.	Artist.
California Fruit and Flowers	M. Straus.
M. Straus.	
Works by Pupils of School of Design.	
Landscape	F. A. Butman.
M. Castle.	
Harvesting	W. L. Marple.
Capt. McDonald.	
Convalescence	Wm. Hahn.
Wm. Hahn.	
The Old Church Door	Wm. Hahn.
Wm. Hahn.	
San Francisco Bay	James Hamilton.
Mrs. Dr. Toland.	
Islais Creek	Thomas Ross.
Thomas Ross.	
Flowers	Samuel M. Brookes.
Samuel M. Brookes.	
Guy Dampierre, Count of Flanders, and Philippine, his daughter, Prisoners at the Louvre	A. de Succa.
A. de Succa.	
Waiting.	Firmin Bouvy.
Firmin Bouvy.	
Moonlight on the Brandywine	Josephine Good.
Josephine Good.	
Farewell	Firmin Bouvy.
Firmin Bouvy.	
Portrait	A. Rockwell.
Judge O. C. Pratt.	
North Point, San Pedro Valley	James Hamilton.
Gov. Purdy.	
Landscape	F. A. Butman.
M. Castle.	
Arab Chief	Chas. Nahl.
Arthur Nahl.	
Daily Evening Post	Charles Prosch.
Charles Prosch.	
Little Pets	E. Wytttenbach.
E. Wytttenbach.	
My Pretty Bird	D. Tojetti.
Jabez Howes.	
Napa Creek	W. L. Marple.
Capt. McDonald.	

Title and Contributor.	Artist.
Napa Valley..... Capt. McDonald.	W. L. Marple.
Cupid Mrs. J. L. Gamble.	Mrs. J. L. Gamble.
The Audience..... Miss J. Plum.	Miss J. Plum.
Moonlight on the Bosphorus..... Miss Josephine Good.	Miss Josephine Good.
Winter Scene in England..... Miss Josephine Good.	Miss Josephine Good.
Roses..... Miss Josephine Good.	Miss Josephine Good.
Pope Leo..... E. Narjot.	E. Narjot.
Expectation..... A. Rockwell.	A. Rockwell.
Inside the Heads..... Thos. Ross.	Thos. Ross.
Petaluma Creek..... Capt. McDonald.	W. L. Marple.
The Huntsman..... E. Tojetti.	E. Tojetti.
Sheep (after Jacques)..... Gov. Purdy.	M. Lotz.
Evening Bulletin..... Chas. Prosch.	Chas. Prosch.
On the Ocean Beach..... Gov. Purdy.	C. F. Hamilton.
Passing Boston Light Chas. Swaysey.	Chas. Swaysey.
Irish Setter Gov. Purdy.	E. Narjot.
Reverie Miss H. Riddell.	Miss H. Riddell.
Wild Ducks.. Virgil Williams.	Virgil Williams.
Castle Lake..... Capt. McDonald.	Thos. Hill.
Owendale Fall..... Mrs. Judge Sunderland.	J. W. Rix.
Spitz Poodle..... Miss E. Williams.	Miss E. Williams.

Title and Contributor.	Artist.
Scene in Napa Valley..... M. Straus.	M. Straus.
Bossy..... Samuel M. Brookes.	Samuel M. Brookes.
Fruit Piece..... Capt. McDonald.	Thos. Hill.
Sunset on the Coast..... G. J. Denny.	G. J. Denny.
Dawson's Ranch.. .. Capt. McDonald.	Thos. Hill.
French Alps..... M. Castle.	F. A. Butman.
The Fortune Teller..... E. Wytttenbach.	E. Wytttenbach.
Copenhagen..... Dr. Boyson.	G. Brock.
On the Cliff House Beach..... Col. Jackson.	Denny and Kidd.
Wreck of the Pilot Boat Cousins..... Capt. McDonald.	G. J. Denny.
Sketching..... Capt. McDonald.	Thomas Hill.
A Revenge; Leoutino, Duke of Otttoyana, and Stellina, poisoned on their wedding day (History of Naples, by Mery)..... A. de Succa.	A. de Succa.
View in Maine..... M. Castle.	W. L. Marple.
Landscape in Maine..... M. Castle.	W. L. Marple.
Beach Forest in Michigan..... H. P. Gregory.	J. L. Fitch.
Fruit Piece..... S. P. Dewey.	Susie Dugan.
A street in the old Capital of California..... E. Bosqui.	Jules Tavernier
The Arab Steed..... Arthur Nahl.	Charles Nahl.
Wood Scene..... M. Straus.	M. Straus.
Creek in Michigan..... H. P. Gregory.	J. L. Fitch.

Title and Contributor.	Artist.
Landscape.....	C. F. Hamilton.
C. F. Hamilton.	
View on Columbia River.....	F. A. Butman.
Joseph Pierce.	
Portrait.....	S. W. Shaw.
Mr. Gawley.	
Salmon.....	Samuel M. Brookes.
Capt. McDonald.	
San Francisco Bay.....	W. L. Marple.
Capt. McDonald.	
Big Trees, Calaveras Grove.....	Josephine Good.
Josephine Good.	
Tropical Scene.....	Miss H. Riddell.
Miss H. Riddell.	
Italian Peasant Boy.....	C. H. Candidus.
Mrs. Jos. Peirce.	
Duck Hunting.....	E. Lambert.
C. F. McDermott.	
Feast of Fruit.....	
C. M. Condee.	
Beatrice Cenci.....	
Capt. Roberts.	
Shaking Dice.....	
C. M. Condee.	
Fishing on the River Seine, France.....	C. Fraiser.
C. F. McDermott.	
Roman Peasant Girl.....	Faustini.
M. Castle.	
Donkey and Goats.....	Van der Donck.
D. Lindenborn.	
Alsace.....	H. Thompson.
Irving M. Scott.	
Scene in Bohemia.....	Krause.
Gov. Purdy.	
Scene in Switzerland.....	Krause.
Gov. Purdy.	
Adoration of the Golden Calf.....	Nicholas Poussin.
M. B. Lichtenstein.	
The Milkmaid.....	E. Tabour.
C. F. McDermott.	
Falstaff and Bardolph.....	A. Hart.
D. Lindenborn.	

Title and Contributor.	Artist.
Asking Alms..... E. R. Taylor.	F. Wott.
French Farm House..... C. F. McDermott.	E. Vatora.
Successful Hunt..... Capt. McDonald.	de Voz.
Italian Piper Boy..... Jos. Pierce.	Mais.
Forge; in Switzerland..... M. Castle.	
Pater Noster..... Snow and May.	Constant Mayer.
Truth..... C. F. McDermott.	G. Staak.
Marine View; Holyhead..... M. Castle.	J. E. Collins.
Cattle Piece..... Irving M. Scott.	H. Savry.
Winter..... Gov. Purdy.	Everson.
Performing Dogs..... D. Lindenborn.	de Voz.
Performing Dogs..... D. Lindenborn.	de Voz.
Summer..... Gov. Purdy.	Everson.
Sunset in the Tyrol..... J. G. Riley.	Chas. Millner.
Scene near Vienna, Austria..... David Meeker.	Beihe.
The Dinner Party..... C. F. McDermott.	
Scene in Bavaria, Germany..... David Meeker.	Gunat.
Scene in Holland..... C. F. McDermott.	
Harvest Luncheon..... Irving M. Scott.	H. Bethke.
Game Cocks..... Gov. Purdy.	F. Vanseverdonek.

Title and Contributor.	Artist.
Mynheer's Lunch.....	W. M. Harnett.
Jabez Howes.	
Sheep.....	Van Leemputten.
Capt. McDonald.	
Entrance to Grand Canal, Venice.....	F. C. Welsh.
F. C. Welsh.	
Market Scene; Picardy.....	Colsonn.
D. Lindenborn.	
Festival near Picardy.....	Colsonn.
D. Lindenborn.	
Farm Yard	Grieff.
C. F. McDermott.	
Village on the Seine.....	de Baumont.
C. F. McDermott.	
Moorish Woman.....	Portielje.
Jabez Howes.	
Spanish Girl.....	Rougeron.
Jos. Pierce.	
Sheep.....	Tiebelin.
C. F. McDermott.	
Flowers.....	
C. F. McDermott.	
Contemplation.....	Crall.
Jabez Howes.	
View on the Meuse.....	Henri Scharp.
M. Castle.	
Vaqueros	
C. F. McDermott.	
Gen'l Rosecrans.....	F. A. Davis.
Col. Jackson.	
Swiss Farm.....	Von der Hamm.
C. F. McDermott.	
On the Coast.....	F. M. de Haas.
Jabez Howes.	
Trouble in the Sacristy	F. Au Fray.
Jabez Howes.	
Landscape; Truckee River.....	H. A. Davis.
David Meeker.	
Scene on Lake Tahoe.....	H. A. Davis.
David Meeker.	
Market Scene in the Environs of Rome.....	van Blochman.
C. F. McDermott.	

Title and Contributor.	Artist.
Roman Peasant Girl..... S. C. Bigelow.	C. Porta.
Column of St. Mark, Venice..... S. C. Bigelow.	C. C. Coleman.
Roman Peasant Boy..... S. C. Bigelow.	C. Porta.
Belle of the Vineyard..... Snow & May.	Constant Mayer.
Scene; Schuyler Co., N. Y..... David Meeker.	Hartwick.
Portrait..... W. P. Stout.	Jewett.
Paul and Virginia.. .. C. F. McDermott.	Albrier.
Tribute Money	W. G. Badger
Storm Brewing..... David Meeker.	Perrett.
Scene in Canada	David Meeker.
The Ravishment of Dejanir..... C. F. McDermott.	Outvevay.
The Census Taker..... C. F. McDermott.	Cormillion.
The Adoration of the Infant Jesus	C. F. McDermott.
Studies in Oil, by Pupils of the School of Design.	
Child	Oscar Kunath.
Reverie	Oscar Kunath.
Out of Work..... Col. Jackson.	Geo. H. Burgess.
Napa Creek..... J. R. Fitch.	Oregon Wilson.
The Coming Storm	Wm. Hahn.
Cherries.... Miss Susie Dugan.	J. R. Fitch.
Peaches..... Miss Susie Dugan.	Miss Susie Dugan.
The Obstinate Donkey..... E. Wyttenbach.	E. Wyttenbach.

Title and Contributor.	Artist.
In Distress.....	E. A. Rockwell.
E. A. Rockwell.	
French Alps.....	F. A. Butman.
M. Castle.	
Child.....	Oscar Kunath.
Oscar Kunath.	
Drawing.....	Morris Rosenbaum.
Morris Rosenbaum.	
Portrait.....	Mrs. E. Baldwin.
Mrs. E. Baldwin.	
Portrait.....	Mrs. E. Baldwin.
Mrs. E. Baldwin.	
Durable Transfer Crayon.....	Oscar Kunath.
Oscar Kunath.	
German Interior.....	Moretti & Crazzini.
Moretti & Crazzini.	
Storm.....	C. D. Robinson.
C. D. Robinson.	
Scene in Italy.....	Moretti & Crazzini.
Moretti & Crazzini.	
Cloister of a Monastery.....	Chas. Prosch.
Chas. Prosch.	
Psyche and Vase.....	Annie K. Havens.
Annie K. Havens.	
Drawing.....	Annie K. Havens.
Annie K. Havens.	
Design for Ceiling.....	Moretti & Crazzini.
Moretti & Crazzini.	
Durable Transfer Crayon.....	Oscar Kunath.
Oscar Kunath.	
Design for Ceiling.....	Moretti & Crazzini.
Moretti & Crazzini.	
Interior.....	Moretti.
Moretti.	
Design.....	Moretti & Crazzini.
Moretti & Crazzini.	
Durable Transfer Crayon.....	Oscar Kunath.
Oscar Kunath.	
Design.....	Moretti & Crazzini.
Moretti & Crazzini.	
Church in Italy.....	Moretti.
Moretti.	

Title and Contributor.	Artist.
Design.....	Moretti & Crazzini.
Moretti & Crazzini.	
Church Window.....	Moretti & Crazzini.
Moretti & Crazzini.	
Design.....	Moretti & Crazzini.
Moretti & Crazzini.	
Portrait.....	V. Farriola.
V. Farriola.	
Design.....	Moretti & Crazzini.
Moretti & Crazzini.	
Last moments of Marie Antoinette.....	A. Moreal de Brenans.
A. Moreal de Brenans.	
Design.....	Moretti & Crazzini.
Moretti & Crazzini.	
Interior.....	Moretti & Crazzini.
Moretti & Crazzini.	
The Doubtful Coin.....	Mrs. R. C. Springer.
Geo. Spaulding.	
The Tambourine Girl.....	Mrs. R. C. Springer.
Mrs. R. C. Springer.	
On Austin Creek.....	Wm. Keith.
Wm. Keith.	
Cloudy Weather (Yosemite).....	Wm. Keith.
Wm. Keith.	
In Yosemite.....	Wm. Keith.
Wm. Keith.	
Russian River.....	Wm. Keith.
Wm. Keith.	
Lilies.....	Mrs. Wm. Keith.
Mrs. Wm. Keith.	

 S T A T U A R Y .

Moorish Dancing Girl tossing eggs without breaking them..	Prof. Carlo Nicoli.
David Hewes.	
Two boys playing a game to win the rabbit.....	
David Hewes.	
A Little Boy falling from a rock and losing his flowers.....	Prof. Giuseppe Berretari.
David Hewes.	

Title and Contributor.	Artist.
A Girl who is <i>unlike</i> all other Girls—Vain David Hewes.	Prof. Francesco Maritti.
A Girl playing to have Grandma's Bonnet on..... David Hewes.	Prof. Claudio Fucigna.
Astronomy..... David Hewes.	Prof. Francisco Maritti.
Two Cupids, one seeking to crush the heart, the other saving it.. ..	Prof. Pablo Triscornia.
David Hewes.	
A Little Girl Feeding her Birds..... David Hewes.	Prof. Francesco Bienaime.
Marble Bust, "Prayer".....	P. Liesenfeld.
Marble Bust, "Infancy".....	P. Liesenfeld.
Marble Bust, "Modesty".....	P. Liesenfeld.

ROOMS 2 AND 3.

OIL PAINTINGS.

May Flowers, painted on silk.....	Mrs. Kate Boyd.
View of Saida.....	J. Mersfelder.
Scene on the Sacramento.....	Miss J. Clark.
Le Lac des Buttes, St. Chaumont.....	A. Moreal de Breuans.
Old Orchard Beach.....	Mrs. Kate Boyd.
Going Free— Marine Scene.....	B. Lanfranchi.
Baby Dog.....	Col. W. C. Little.
Sunset on the Columbia.....	Miss J. Clark.
Sheep.....	Teldlio.
Twilight.....	Mrs. J. L. Gamble.
Thunderstorm.....	Miss J. Clark.
White Lilies... ..	Mrs. D. W. Gelwick.
Rock Cod.....	G. F. Shute.
Trout.....	G. F. Shute.
Tom Cod.....	G. F. Shute.
Marine.....	B. Lanfranchi.
Pointer and Quail.....	Mrs. J. L. Gamble.
Pansies.....	J. Cornillon.
The Monk, Ribera.....	C. F. McDermott.
Marine.....	C. F. McDermott.

Mission Dolores Church.....	W. Armstrong.
Marine Scene.....	C. F. McDermott.
The Old, Old Story.....	Mrs. C. M. Brown.
Hawking Party.....	C. F. McDermott.
Target Shooting.....	C. F. McDermott.
The Huguenots.....	Miss P. Paulson.
Meditation.....	F. Y. Gilmore.
Thames Fisherman.....	T. R. Dickenson.
Still Life.....	Cox.
Cypress Point.....	L. Gibson.
Bohemian Comforts.....	Cox.
Siesta.....	L. Gibson.
California.....	Astley D. M. Cooper.
Coat of Arms, "Beaconsfield".....	John Allen.
Porcelain Painting.....	Mrs. Kate Boyd.
Portrait of Romualdo Pacheco.....	A. Vargas.
Portrait.....	A. Vargas.
Lady Mary Wortley Montague.....	A. J. Boyer.
Winter Scene in Denmark.....	
Portrait of Archbishop Alemany.....	Narjot.
Turkish Maiden.....	Miss J. Plum.
Portrait.....	F. Wolfe.
Dead Christ and Virgin, by Augustino Caracci; this original picture is from the collection of Prince Louis Napoleon, and purchased at Christie's, London, when the Prince's effects were sold.....	F. S. Douty.
Portrait.....	A. Vargas.
Oil Paintings and Drawings in Water Colors.....	C. Prosch's Pupils.

DRAWINGS, CRAYONS, ETC.

Late J. Anthony, of <i>Sacramento Union</i> (crayopaque).....	A. Nahl.
Son of J. Anthony (crayopaque).....	A. Nahl.
Late Chas. C. Nahl (crayopaque).....	A. Nahl.
Late Senator Nathan Porter (crayon).....	A. Nahl.
Crayon Portrait.....	A. Nahl.
Judge Lorenzo Sawyer (crayon).....	A. Nahl.
Mrs. Lorenzo Sawyer (crayon).....	A. Nahl.
Portrait.....	A. Nahl.
Imported English Mastiffs (crayopaque).....	A. Nahl.
Black Crayon Drawings (2).....	A. Nahl.
Water Color, painted on Porcelain (2).....	A. Nahl.
Water Color Birds (2).....	A. Nahl.
Water Color Portrait.....	Hamilton & Jackson.
Crayon Portrait.....	Hamilton & Jackson.
Crayon Portraits.....	S. Hoffman.
Water Color Portrait (2).....	Mrs. J. L. Gamble.

Crayon Portrait.....	Mrs. J. L. Gamble.
Crayon Portrait.....	V. Ferraioli.
Crayon Portrait of "Troy Dye".....	Hamilton & Jackson.
Lakes of Tummel, pencil drawing.....	Sarah Cochran.
Snowed In, pencil drawing.....	Sarah Cochran.
Drawing and Sculpture Work.....	Michelsen & Boyd.
Love and Friendship, pencil drawings (2)	J. Vogeley.
Rare Engravings and Etchings (17).....	W. K. Vickery.
Design for a Tomb	John M. Curtis.
Drawings from School of Engineering (18).....	A. Van der Naillen.
Drawings by Pupils of the Public Schools (2,400).....	
Drawings and Penmanship by Pupils of Carl Eisenschimel (14)	
Architectural Drawings.....	H. Luedeke.
Penmanship and Pen Drawings.....	Oakland Business College.
Drawings.....	Miss Mary Jones.
Penmanship and Pen Drawings.....	Barnard's Business College.
Architectural Drawings.....	W. F. Smith.
Territorial Pioneers' Certificate.....	A. Currier.
Drawings (2)	M. Rosenblum.
Pen Drawings.....	P. A. Espina.
Architectural Drawings (2).....	Sherwin & McKenzie.
Elaine, pencil drawing.....	Mrs. L. E. Perine.
Design of Decorations for New City Hall.....	A. Frassi.
Industrial School, pencil drawing.....	James Small.
Architectural Drawings	S. C. Bugbee & Son.
The Actor's Dream, medley picture.....	Henry White.
Medley Picture.....	Miss Ann Ankin.
English Engravings, 106 years old; Madonna and Child, Roman Engraving, over 300 years old, original picture by "Van- dyke"	Ada G. Lund.
Engraving from Raphael, St. Catherine and Holy Family—An- cient.....	Ada G. Lund.
Vision of the Surrender of the Sword of Napoleon.....	Ada G. Lund.
The Banquet—Ancient.....	Ada G. Lund.
Hubert Gravelot—Ancient.....	Ada G. Lund.
Sketch, Holy Family and St. John, by old Master.. ..	Ada G. Lund.
Jupiter saving the Nymph's Chastity by turning her into a Tree, by Parmigianino.....	Ada G. Lund.
Head of Titian—Antique.....	Ada G. Lund.
Marriage of Isaac and Rebecca, from original, Claude Lorraine..	Ada G. Lund.
Ippolito de Medici, Duke of Florence in 14th Century.....	Ada G. Lund.
Dutch Officer, from original, G. Rembrandt.....	Ada G. Lund.
Engraving of Raphael's Virgin and Child, by Raphael Morgan.	Ada G. Lund.
The Dutch City Fathers drawing the Charter for New Amster- dam, now City of New York; in India ink, over 200 years old.....	Ada G. Lund.
Garibaldi, woven in silk, in Switzerland.....	Ada G. Lund.

The Apothecary, French colored Engraving; from Tenniers.....	Ada G. Lund.
The Huntsman, French colored Engraving; from original by Tenniers.....	Ada G. Lund.
Samson and Delilah—Antique.....	Ada G. Lund.
Druids' Rites; old Engraving.....	Ada G. Lund.
Santa Anna bathing Infant Jesus; this Engraving is 300 years old (antique gem).....	Ada G. Lund.
Portrait of Christopher, by Venitian School, over 300 years old; painted on metal; reference, Tojetti.....	Ada G. Lund.

P H O T O G R A P H S .

Photographs and Portraits; plain, retouched and colored..	Bradley & Rulofson.
Photographs	Ormsby.
Water Colored Portraits and Colored Photographs ...	Emily R. Eastman.
Photographs.....	Elite Gallery.
Photographs of California Scenery.....	C. E. Watkins.
Photographs.....	R. W. House.

WORKS IN PLASTER, ETC.

Medallions, Zinc (2).....	J. D. Grey.
Bust of James Lick	P. Mezzara.
Marble and Alabaster Vases	Mencarini.
Bust of R. B. Woodward.....	T. Gagliardi.
Bust of John Winnemucca.....	T. Gagliardi.
Bust of T. Gagliardi.....	T. Gagliardi.
Sketch of Thomas Harris.....	T. Gagliardi.
Sketch of Colossal Statue of Washington.....	T. Gagliardi.
Bust of Lucio Laffi	T. Gagliardi.
Marble Pin Cushion	Joseph Giovanni.
Bust of E. Narjot, the Artist.....	P. Mezzara.
Group of the State of California for the State Capitol at Sacra- mento.....	P. Mezzara.
Crucifix, Wood Carving.	John Strahwald.
Water Lilies, Wood Carving.....	John Strahwald.
Clock Case, Wood Carving.....	John Strahwald.

SHELL, HAIR AND WAX WORK, NEEDLE WORK, ETC.

Shell Work.....	Miss Anna Cluver.
Preserved Flowers.....	Mrs. N. Hathaway.
Point Lace.....	Mrs. Eliza Gerrish.
Bouquet of Paper Flowers.....	Mrs. Samuel Dinsmore.
Hair Wreath.....	Mrs. M. E. Hoag.
Ferns and Sea Mosses.....	A. G. Nye.
Honey Comb Spiral Work.....	A. G. Nye.
Sea Moss Album and Specimens.....	A. G. Nye.

General Sherman, Hair Work.....	C. Streibe.
Needle Work.....	Mrs. Thorson.
Washington; Hair Work.....	C. Streibe.
Needle Work Picture.....	Miss Greer.
Peter the Great, Worsted.....	Mrs. Bowder.
Needle Work, Fire Screen.....	Miss P. Paulson.
Basket Shell Work	Miss Anna Cluver.
Wax Work, Roses and Pond Lilies.....	Miss Ida E. Thomas.
Paper Flowers and Lace Work.....	Mrs. Inverarity.
Crochet Work.....	Mrs. Knowlton.
Handkerchiefs, Hand Embroidered.....	Mrs. C. Jones.
Collar made from Turkey Feathers.....	Mrs. C. T. Butler.
Hat made from Pine Leaves.	Mrs. J. H. Nevins.
Handkerchief Box, and Tidy.....	Mrs. H. T. Colby.
Cushion, Embroidered.....	Mrs. P. Thorson.
Spanish Work	Mrs. Kallewell.
Worsted Work.....	Sarah Van Straaten.
Silk Quilt and Tidies.. ..	Mrs. M. Fest.
Spatter Work.....	Lilly Ransome.
Sofa Pillows.....	Mrs. Sara Keating.
Basket Wax Flowers	Mrs. Johnson.
Watch Pocket, in form of Slipper.....	Mrs. H. F. Colby.
Picture in Worsted, "Mary, Queen of Scots".....	Snow & May.
Pin Cushion.. ..	Mrs. J. Hager.
Card of Lace Work	Mrs. Frank A. Maguire.
Lace Work.....	Mrs. Chester T. Snow.
Wax Work, Wreath of Flowers.....	Mrs. John Pettee.
Basket of Wax Flowers	Mrs. John Pettee.

MISCELLANEOUS.

Case of Egyptian Curiosities, Rare and Ancient.....	David Hewes.
Egyptian Mummy and Case....	David Hewes.
Pneumatic Clocks.....	H. Wenzel.
Passe Partouts, Mats and Gold Frames.....	Louis Dampf.
Mineral Specimens, 5,000.....	John Hatch.
Gun Boat, model.. ..	Ivan Fourquit.
Model of Ship "City of San Francisco".....	Hall Bros.
Model of Ship "Glory of the Seas".....	C. T. Peters.
Model of Ship "Challenge".....	R. C. Hansen.
Boat, "Lady Washington".....	Martin Vice.
Model of Ship "Independence".....	A. Crawford.
Model of Yacht.....	M. Campbell.
Model of Yacht	J. W. H. Purdy.
Model of French Government Schooners "Avrai" and "Or- hena".....	Boise & Bell.
Model of Yacht.....	J. J. Stephen.

Model of Ship.....	N. D. Nichols.
Model of Church; made by a seaman on board the French barque "Louise Marie," now in this harbor; exhibited by her Captain.....	Adolph Aubanet.
A Puzzle.....	Anton Karner.
Model of Ship.....	W. F. Herrick.
A suit worn by one of the first ladies in San Fran- cisco, March, 1849.....	Edward A. T. Gallagher.
Collection of the Minerals, Vegetables, Cereals and Woods of Japan.....	T. Tweedale.
Model of French Ship "Auguste Marie," made by a sea- man on board the French barque "Louise Marie," now in this harbor.....	Capt. A. Aubanet.
Model of Yacht	Farnham & White.
Model of Pilot Boat, now building at North Beach.....	Farnham & White.



REPORTS OF COMMITTEES.

INSTITUTE MEDAL.

To the Managers of the Thirteenth Industrial Exhibition:

GENTLEMEN—We, the undersigned, Committee on the award of the Institute Gold Medal “for the most meritorious California invention, invented and manufactured since 1876,” would report that after careful examination from time to time of the various inventions and improvements on exhibition, have come to the conclusion that there is none more applicable to the present wants and requirements on exhibition, than the Hawkins Patent Elevator Hoist. Its simplicity and originality of construction, general adaptability, combined with safety, steadiness of motion and apparent durability, render it worthy of the highest distinction and consideration.

Respectfully submitted,

GEO. L. PIERCE,
A. P. DIETZ,
A. J. McLERIE,
Committee.

The Institute Gold Medal was awarded to Wm. Hawkins for the above invention.

For the encouragement and advancement of drawing in the public and private schools of the city, it was announced that premiums would be awarded in the same manner as at the last Exhibition. The various grades of the public schools were well represented, and a marked and decided improvement in detail, style and design could be observed from those exhibited last year. The private schools also showed the result of careful instruction, and in both public and private schools the teachers may be proud of their pupils' work.

A diploma of new design was awarded to each scholar, as recommended by the Committee.

REPORT ON DRAWINGS.

To the Board of Managers of the Thirteenth Industrial Exhibition :

GENTLEMEN—We, the undersigned, Jurors appointed to examine the drawings from the public and private schools, now on exhibition, beg to report as follows:

From the drawings from the public schools, 2,400 in number, we have selected six drawings in each grade, including the Girls' High School, and made the awards to the following scholars, and named in the order of their merit:

GIRLS' HIGH SCHOOL.

Blanche Masounette.....	Egyptian Vase in Crayon.
Eugenie Burgin.....	Egyptian Vase.
Ella Klauber.....	Design for Fresco.
Lizzie Lummerton.....	Design for Floor Tile.
Fanny Chipman.....	Egyptian Vase in Crayon.
Coe C. Ellis	Design for Book Cover.

FIRST GRADE.

Sylvia Rey	Design for Fresco.
Sophia Christian	Design for Fresco.
Jane Lucas.....	Antique Vase.
Lillie Piper.....	Design for Fresco.
Jennie Wadham.....	Monogram, with Vine and Leaf Border.
Belle Reis.....	Antique Vase.

SECOND GRADE.

George W. Hawley.....	Monogram, with Vine and Leaf Border.
Bella Goldman	Ornamental Design.
Samuel Latham.....	Design for Wall Paper.
Jennie Du Jardin.....	Triple Leaf and Vines.
Ruth Benjamin.....	Ornamental Design.
Bella Palmer	Ornamental Design.

THIRD GRADE.

Archie Treat	Ornamental Design.
Philip Knell.....	Triple Leaf and Vines.
Henrietta Winters	Triple Leaf and Vines.
Jennie Rice.....	Design with Leaves.
William Carlson	Design for Fresco.
Emilie L. Edouart.....	Ornamental Design.

FOURTH GRADE.

Josie Le Berthon.....	Design for Center Piece.
Jessie Marple	Design with Leaves.

Addie C. Hughes.....	Ornamental Design.
Annie Gray ..	Ornamental Design.
Annie Mallett.....	Design for Fresco.
Charles Sanford Arnold.....	Ornamental Design.

FIFTH GRADE.

Flora Levy	Design with Vines and Leaves.
Louise Lorenzi.....	Ornamental Design.
Robert Mitchell.....	Ornamental Design.
W. Taylor.....	Flowers.
Effie Harrison.....	Design for Carpet.
C. Lenoire	Design with Ivy Leaves.

SIXTH GRADE.

Mary Carlson	Design for Fresco in Colors.
Rose Chesneau.....	Ornamental Design.
Edward A. Harvey.....	Ornamental Design.
John Doherty.....	Design for Carpet.
Katie Beez.....	Design for Carpet.
Jennie Levy.....	Geometrial Figure.

PRIVATE SCHOOLS.

VAN DER NAILLEN'S SCHOOL OF ENGINEERING,

F. Aureguy.....	Marine Engine.
Eddy Van der Naillen.....	Drill Press.

PUPILS OF CARL EISENSCHIMEL.

T. W. Church.....	Stallion.
David Sachs	Locomotive.
J. H. Barkhouse.....	Female Head.
Minnie Scholle.....	Icebergs.

PUPILS OF BARNARD'S BUSINESS COLLEGE.

Susie Sroufe.....	Cat and Mouse, "Pen Work."
Miss Fletcher.....	Bouquet of Flowers, "Pen Work."

CHARLES PROSCH'S SCHOOL.

Richard Villafranca.....	Bust of Agamemnon.
E. Kennelly.....	Portrait of Washington.
Paul Montijo.....	Mountain Scenery.

Respectfully submitted,

F. VON LEICHT,
G. F. ALLARDT,
J. H. WILDES,
JURORS.

REPORT ON PLANTS AND FLOWERS.

We, the undersigned, Committee to award the premiums offered by the Managers for a floricultural display, would most respectfully report—

That we have examined, with care and pleasure, the exhibits made by the several competitors, viewing them frequently and noting all praiseworthy efforts which have been made to interest and instruct the visitors at the Fair. We find that the exhibitors generally are entitled to much praise for maintaining their stands in fine condition, and introducing new supplies at intervals to keep the display in fine order.

We would respectfully remark that we regret to notice that the suggestions made by the Committee of Judges at last year's Fair concerning the advantage of having all plants clearly marked, was not put into force this year. We think there can be no doubt of the great benefit which the public would derive if every plant on exhibition were plainly marked with both common and botanical name, and we hope this suggestion will be realized hereafter.

We would also suggest that the schedule of premiums which invited competitive displays of certain special classes of plants be restored hereafter, as such competitive displays encourage specialists to bring their favorite classes to the highest perfection.

We have awarded the premiums offered by you this year, as follows:

Miller & Sievers, Best Continuous Display of Plants and Flowers during the Exhibition.	Cash premium, \$100
James Hutchinson, Oakland, 2d Best Continuous Display of Plants and Flowers during the Exhibition.....	Cash premium, \$75
James Hutchinson, Oakland, Best Display of Cut Flowers.	Cash premium, \$30
Thomas Saywell, 2d Best Display of Cut Flowers.....	Cash premium, \$20
E. A. Upton, Best Display of Cut Flowers by an amateur..	Cash premium, \$15

We would recommend for a special premium, the fine and comprehensive exhibit of Ferns, Palms, and other rare and beautiful foliage plants made by Woodward's Gardens. This exhibit is of high merit, but as the premiums entrusted to us are for "Plants and Flowers," we find that it does not come within the conditions.

(A special premium of a Bronze Medal was awarded Woodward's Gardens for Tropical and Foliage Plants.)

Respectfully submitted,

R. J. TRUMBULL,
EDWARD J. WICKSON,
E. J. HOOPER.

REPORT

OF THE

JURY OF WINE EXPERTS.

A FEW PREFATORY AND PERSONAL REMARKS BY REV. J. J. BLEASDALE, D. D
OF AUSTRALIA.

Having come on a visit from Victoria, Australia, to California, and having had occasion to remain in or near San Francisco for some time, I found, when sufficiently informed of the nature and scope of the late Industrial Exhibition, holden under the auspices of the management of the Mechanics' Institute, that my spare time might be filled up in an interesting and not altogether unprofitable way if I were to succeed in instituting an inquiry into the character of the California wine industry. Accustomed, as I have been, to see in Australia, on occasions like this, very great numbers of samples of wines from each of the three wine-producing States, I concluded that the case would be the same here also, at any rate to a very considerable extent. In this opinion I rested and made no inquiry till the month of July, when chance threw in my way the reports of the eleventh and twelfth similar previous Exhibitions. On turning to the list of exhibits of wine my surprise was great on finding it confined to a few samples from three or four vintners, and those by no means the oldest or most extensive producers or treaters. Thereupon I paid a visit to the Secretary of the Mechanics' Exhibitions, J. H. Culver, Esquire, who received me kindly and politely gave me much useful information. There resulted then from this a communication from myself to the Board of Managers of that institution, suggesting the enlargement of the scope of the wine sections, and offering such experience and services as lay at my disposal for attaining that object. This proposal was favorably entertained, and an official notification of the proposed scheme of examination forwarded to over fifty wine growers and vintners, embracing as wide a range of California as possible.

J. J. B.

CORRESPONDENCE WITH THE MANAGERS OF THE EXHIBITION,
THROUGH THEIR SECRETARY.

SAN FRANCISCO, 22 July, 1878.

To the Secretary of the Mechanics' Industrial Exhibition:

SIR—Reverting to our conversation of Saturday last regarding enlarging the scope and utility of the approaching fair or exhibition by including among its aims and objects some of those elements which tend directly to render such gatherings a source of practical permanent instruction, and which for many years have proved very beneficial in France, Portugal, Australia, and other countries, I have deemed it worth while to reduce to writing the principal points we touched upon, so that you may consider them more fully at your leisure.

Firstly, then, in order to render expositions of produce of value to the producing classes hereafter, I consider it indispensable to exclude all ideas of competition as between individual exhibitors. Thus any report by the judges and experts will affect chiefly the character of each kind of produce as coming from parts or districts of the county or State differing from one another, on account of climate, soil, exposure and processes of manipulation.

Secondly, careful classification; say of wheat according to its variety; different sorts of wines according as they are dry or sweet, new or of mature age, red or white, effervescent or still; and so also with dried fruit, &c., &c.

Thirdly, it is all important to secure the services of competent judges for the several classes; gentlemen who are in no way interested pecuniarily or otherwise in the objects to be adjudicated upon by them, and who are able and willing to reduce their collective opinion to writing in the form of official reports, which when collected may form an official record for the year. Surely in a community so numerous and wealthy as this is there ought to be no lack of gentlemen with public spirit, ability and leisure, who would consider it an honor here, as it always is in Europe, to render their services for an object so important and patriotic. Thus the merchant, the trader, and the general public would become possessed of a reliable expression of opinion from scientific and other judges, who have only the public advantage in view.

In Australia generally, and in the State of Victoria in particular, during many years, large sums of money have been voted by the Legislature for exhibitions and local agricultural shows; and the confidence in their importance, both at home and abroad, is evidenced by the fact that there has never been any opposition shown to them, either in Parliament or by the press, but, on the contrary, the votes of late years have been on the increase. There exists in all new countries, and in a more strongly marked manner among populations derived from northern countries, whether American or European, prejudices so deeply rooted that under ordinary circumstances one generation does not suffice to eradicate them—unless, indeed, reliable assurance can be obtained that the native produce is equal to, if not even superior, to that imported. The above remarks, though of general application, bear with especial force on some kinds of local industries, notably wines, raisins, dried fruits generally, cheese, etc.

At this point our conversation turned upon taking steps to render the exhibition of wines and raisins a feature in the forthcoming Exhibition, with the view of their being examined and reported upon by independent and scientific experts. We also considered that about three bottles of each kind that the vineyard proprietors or merchants think proper to send as characteristic of their growths, should be placed in your custody with the least possible delay, so that they may rest awhile and be in good condition to be judged at the proper time. It is desirable to obtain a few particulars as to climate, soil, exposure, yield per acre, and the name of the principal varieties cultivated by each, for this would add much interest to the wine report, and help to benefit both producer and merchant, as well as to serve to some extent for a guide to intending planters of new vineyards. That some few of the California wines are excellent I know, and also that many which I have already met with are very faulty—the faults being of a preventable kind in all, but mostly in red wines.

If you and those who act with you think well to carry these suggestions into effect on the present occasion—and there is yet time—I, on my part, will endeavor to the extent of my ability to make the undertaking a success. Should those interested in this great source of national wealth decline to co-operate with the promoters of the Fair, I shall deeply regret it. It has only quite lately been told to me, that, judging by the apathy shown in former years, the wine show will be limited to a few samples, and by no means an example of the produce of the country. Should it prove so, I shall have no other course open than to buy at the stores and restaurants such samples as I can procure for distillation and analysis, in order to fulfill a promise made to not a few of my Australian wine-growing friends to study, and draw up a report on the wines of California, about which they have a rather lively curiosity. Of course, a report touching on little more than the wines of consumption is not likely to benefit the reputation of the wines of the country.

I have the honor to be, sir, your most obedient servant,

JOHN J. BLEASDALE, D. D.

The Board of Managers having approved the suggestions set forth in the above letter, directed the Secretary to issue the following circular, which was sent to fifty-eight of the best-known wine growers and wine merchants of the State:

CIRCULAR LETTER TO VIGNERONS.

SAN FRANCISCO, July 31, 1878.

DEAR SIR—After mature consideration by the Board of Managers, it has been decided to invite wine-growers and merchants to co-operate with them in rendering the exhibition of pure native California wine at the forthcoming Fair as worthy of the occasion as possible; and also for the purpose of having them submitted to experts, *not for competition*, as between individual growers or merchants, but mainly with a view to obtain a report on their respective characters and general vinous properties.

The jury will be composed of gentlemen who have no personal or pecuniary interest, but only a scientific one, in wines.

A gentleman from Australia, the Rev. Dr. Bleasdale, who is residing here for a time, who, it is well known, has done much to foster and advance the vineyard interests in Australia, and whose critical judgment upon pure wines has long been recognized and highly esteemed, both in Australia and England, has agreed to take part in the present Exposition, and also to favor the Managers with a report upon the samples submitted.

The Managers consider that such an independent report by a distinguished savant would benefit the wine industry both in this country and abroad, by giving reliable information on the extent, variety and goodness of the results obtained hitherto in this branch of Californian agriculture.

It will be sufficient to send three bottles of each kind to lay before the judges; but it would be well to send also some empty *labeled* bottles to place on shelves in the hall. The wine should be sent with the least possible delay, that it may have time to rest and recover condition. Young wines are specially requested.

I am to request vineyard proprietors residing at a distance, who may have agents in San Francisco, but who may not care to send samples, to authorize me to obtain from them the samples of wines which they consider most interesting and characteristic of their districts, or of their methods of treating and maturing them.

Herewith I inclose a form, which, I trust, you will be so good as to fill up and return. A full and complete report will be prepared, published and sent to each exhibitor.

All packages to be marked "Wine Exhibit," 13th Industrial Exhibition, San Francisco, Cal., and the charges prepaid. The Fair will open on the 13th of August.

Any further information will be given or sent on application.

J. H. CULVER, Secretary.

APPLICATION TO VIGNERONS.

Enclosed with the circular was a printed form, to be filled up, giving certain details of the vineyards, cultivation, yield of grapes, etc. Following are the heads of information asked:

Name of wine and number of samples sent in.

Age of wine, or date of vintage.

Name of vineyard.

Approximate yield per acre.

Name of locality or district.

Mention the names of the kinds of grapes generally grown in the district.

Remarks—Any information as to character of soil, hill or plain; system of cultivating, distance of plants in the rows, etc., thankfully received.

To this appeal but very few returned written replies, and but two or three supplied the few particulars of cultivation sought for. After waiting until the opening of the Exhibition, and receiving but little prospect of a fair show,

Rev. Dr. Bleasdale devoted a good deal of time to visiting the principal wine-growers and dealers of the city, and explained to them the nature of the intentions of the Board of Managers of the Exhibition, on this occasion pressing inviting them to co-operate heartily in the design—one, as it seemed, likely for being alike beneficial to the individual wine men, as well as to the wine industry of the State generally. The public press took the subject up and lent the aid of their advocacy also by making known the views and aims of the Board of Managers. Still there seemed to be nothing less than apathy shown by those most interested. Meanwhile Dr. Bleasdale visited the districts of Sonoma, Napa, St. Helena and Calistoga, to inform himself of the condition of viticulture and cellar-work of those fine wine districts, where he received assurances of co-operation from all with whom he came in contact, though the time at his disposal did not admit of his visiting every large vineyard in those districts. The following vintners alone responded:

FROM CALISTOGA.

One sample Schramsberg, 1875; yield per acre not ascertained; Schramsberg Vineyard, Calistoga.

One sample Burgundy, 1876; yield per acre not ascertained; Schramsberg Vineyard, Calistoga.

Mission, Reisling, Malvoisie and Zinfandel varieties of grapes generally grown in that vicinity.

Mr. Schram, the proprietor, is the pioneer viniculturist of the hill country, and his enterprise and industry have been well rewarded. He has shown the way to render fruitful many a thousand acres of beautiful hills now worthless, bearing nothing but scrub and underbrush. I visited this vineyard on purpose to witness while the vintage was in progress, and gladly testify to its fertility. The cellars are dug out of the rock.

JOHN J. BLEASDALE, D. D.

Calistoga, October 5, 1878.

FROM MISSION SAN JOSE.

Burgundy, 1876; yield good for new vines; Mission San José Vineyard, Mission San José.

Malvoisie, 1876; Mission San José Vineyard.

One of the Burgundy varieties called Malvoisie.

I have to acknowledge the receipt to-day of your circular and blank form. The latter I have filled up and enclose. I will send you to-morrow by express, prepaid, to destination, one case containing four bottles Keene's Burgundy, vintage of 1876; James R. Keene is the owner of the vineyard. We have not thus far made much wine. We are testing the wine made from the grapes, in order to ascertain which grape to use in grafting out our mission vines, being determined to replace the latter by whatever foreign grape suits best this soil

and climate for the manufacture of wine. The attention of your committee on wines is respectfully requested to the following practices among our manufacturers of wine: Mixing mission grapes with a small percentage of foreign grapes, and naming the product after the foreign variety; mixing several kinds of foreign grapes, and giving the same the name of the most pronounced. If this method of manufacture should fail to meet with the approval of your committee, it would, I think, materially assist in improving the quality of our wines. The wine I send was made from the Malvoisie grape, one of the Burgundy family. Our Malvoisie will not bear transportation to San Francisco when fully ripe.

Respectfully, your obedient servant,

I. C. Woods.

Mission San Jose, August 16, 1878.

Four bottles Keene's Burgundy, 1876; young vines—yield in 1876, 6 lbs. per vine, in 1877, 1¾ lbs. per vine; Buena Vista Vineyard, Mission San José, Alameda County.

Mostly Mission grapes produced.

The grapes from which this wine was made were grown on gravelly soil, hill side, about 150 feet above level of the sea; scarcely any frost at the Mission San José. We have a very long season; vines sprout in March, fifteen days earlier than San José grapes, ripen September, October and November. At this time (August 16) no variety of grape has ripened.

I. C. Woods.

Mission San José, Alameda Co., Aug. 16, 1878.

FROM SONOMA.

Two bottles Gutedel, 1870; yield from 350 to 600 gallons per acre; Rhine Farm Vineyard, Sonoma County.

Two bottles White Chaselas, 1873; yield from 350 to 600 gallons per acre; Rhine Farm Vineyard, Sonoma County.

Two bottles Riesling, 1874; yield from 350 to 600 gallons per acre; Rhine Farm Vineyard, Sonoma County.

Two bottles Johannisburg, 1875; yield from 350 to 600 gallons per acre; Rhine Farm Vineyard, Sonoma County.

Two bottles Zinfandel, 1874; yield from 350 to 600 gallons per acre; Rhine Farm Vineyard, Sonoma County.

Two bottles Zinfandel (Red), 1876; yield from 350 to 600 gallons per acre; Rhine Farm Vineyard, Sonoma County.

The varieties produced on the Rhine Farm Vineyard comprise Mission, Riesling, Chaselas, Traminer, Black Hamburg, Rose of Peru, Zinfandel, Malvoisie, Flame Tokay, Muscat Alexandria, etc.

The Rhine Farm Vineyard is located within a mile of the city of Sonoma, and represents an estate of about 300 acres. The wines made here are prin-

cipally dry wines made of the different leading varieties; the Johannisberg, Riesling and Gutedel (White Chaselas), properly treated, producing the finest and choicest wines made in California. Zinfandel (an Austro-Hungarian grape, deriving its name from Zier-Tahnder) takes the lead among the red wines, producing a very rich, full-bodied Burgundy wine. Black Hamburg, Mission, Malvoisie, Muscatel, and all the other varieties, yield abundantly. The character of the land is hilly, with an easy slope towards the bottom land; the vines are planted 6x8 and some 6x6, which leaves sufficient room for plowing and cultivating.

JACOB GUNDLACH, Sonoma.

J. GUNDLACH & Co., San Francisco.

FROM UPPER SONOMA.

Three bottles Mission White Wine, 1873; yield $1\frac{1}{2}$ tons grapes per acre on hill land to 4 tons grapes on valley land; George F. Hooper Vineyard, Sonoma.

Three bottles Tokay, 1874; yield $1\frac{1}{2}$ tons grapes per acre on hill land to 4 tons grapes on valley land; George F. Hooper Vineyard, Sonoma.

Three bottles Chablis, 1874; yield $1\frac{1}{2}$ tons grapes per acre on hill land to 4 tons grapes on valley land; George F. Hooper Vineyard, Sonoma.

Six bottles Table Claret, 1874; yield $1\frac{1}{2}$ tons grapes per acre on hill land to 4 tons grapes on valley land; George F. Hooper Vineyard, Sonoma.

Three bottles Table Claret, each of 1875 and 1876; yield $1\frac{1}{2}$ tons grapes per acre on hill land to 4 tons grapes on valley land; George F. Hooper Vineyard, Sonoma.

Three bottles Zinfandel, each of 1876 and 1877; yield $1\frac{1}{2}$ tons grapes per acre on hill land to 4 tons grapes on valley land; George F. Hooper Vineyard, Sonoma.

The following varieties of grapes are produced on the above-mentioned vineyard: Mission, Zinfandel, Black Malvoisie, Rose of Peru, Black Hamburg, Black Malaga, Chasselain, Tokay, Muscat of Alexandria, White Muscat of Frontiguer, Berger, and a few Alicante.

Hill land, gravelly and volcanic, apparently mixed with loam, and in some portions the surface of land is rocky. Valley land is loam, mixed with adobe, and alluvial deposit in places. Vines are planted eight feet apart, in squares; cultivation, plowing and cross-plowing, followed by harrowing both ways, also hoeing vines and cultivating until prevented by growth of foliage. Vineyards are manured and drained.

For G. F. HOOPER,
Sabatié, Suich & Co., Sole Agents in the U. S. A.

APPOINTMENT OF EXPERTS.

Meanwhile the undermentioned gentlemen were invited by the Board of Managers to become a Board of Experts, to investigate and report upon all wines which might be sent in as to their inherent goodness or defects, and to offer such suggestions as to them might seem prudent and beneficial to an interest of so great magnitude as that of viniculture and its many products. They were selected on account of their professions, or for their special fitness for the office of experts, and also to close the door to jealousy or fear of favoritism, which might easily arise, since none of them had any other than a purely scientific interest in the matters submitted to them:

Prof. E. H. HILGARD, Professor of Agriculture in the State University.

CHARLES BERTODY, Esquire, M. D.

WILLIAM HAMMOND, Esquire, M. D.

H. H. BEHR, Esquire, M. D.

B. B. REDDING, Esquire.

ADOLPH HERBST, Esquire.

Rev. JOHN J. BLEASDALE, D. D., F. G. S.

Having signified their willingness to give their services, they were formally appointed a Board of Experts for the above purposes. A quorum of the above named gentlemen met on Saturday, the 15th September, and made the necessary preliminary arrangements, previous to commencing the work of examining the samples—namely, Professor Hilgard in the chair; Drs. Behr and Bertody, Adolph Herbst, Esq., and Rev. Dr. Bleasdale. On this occasion, Professor Hilgard was appointed President, and Rev. Dr. Bleasdale, Secretary and Reporter. It was decided that the labels of all bottles should be effectively covered and only a number placed on them, so as to prevent a knowledge of whose wine was before them. It was also decided that twenty (20) marks should be the highest that could be awarded to any sample. Should any, as might happen in the instance of very young wines, fall *below* 10 marks, they should not be classed; that from 10 to 13 marks, both inclusive, should constitute the third, or lowest class; from 14 to 16, inclusive, the second class; and from 17 to 20, inclusive, the first, or highest; and that the record or each one's judgment should be entered by him separately on a form under the following heads, viz:

1. Date of vintage.
2. Color of the sample.
3. Condition.
4. Flavor.
5. Bouquet both as to quantity and quality.
6. Body—light, medium or full.
7. Acidity felt by the palate.
8. Value of the sample in numbers.
9. Classification, being the average number of marks awarded.

To the Managers of the Industrial Exhibition:

GENTLEMEN—I have the honor to report, on behalf of the wine experts, that all which could be done in the time available has been done in order to render this department of the Exhibition effective—with a view to placing the interest on a basis that would command the confidence of both the consumer and the merchant. I think it would be difficult to bring together a board of experts so free from bias as the one you have appointed, or one which could lay a higher claim to the confidence of the public. It has been owing to the want of hearty co-operation on the part of wine-growers and merchants that the wine exhibits have not been already disposed of. A fair number of samples are already in hand, and more are coming in; still, I fear the exhibit, on the whole, will not convey an average idea of this industry in the State.

I would respectfully suggest to the Board of Managers that it is desirable, on purely public grounds and in strict conformity to the principles of which the Exhibition was held, that the wine report should be of such a character as to form the scheme and basis of future reports of a similar nature; and as to the means for rendering it effective and comprehensive, a small sum should be placed in the hands of any executive officer of the Trustees, to be disbursed as required for the purposes of rendering the report which I have promised to draw up as complete as circumstances admit of.

For that purpose some samples will have to be purchased, and there will be the expense of some spirit of wine for burning during the distillation of the samples, in order to determine their respective spirit strength, a necessary item in the report.

I have the honor to be, sirs, your obedient servant,

JOHN J. BLEASDADE, D. D.

FROM ARTICLES BY A. HARASZTHY, ESQ.

Works treating of viniculture and wine-making in the State of California are very few. Besides the truly excellent book by Colonel Haraszthy—which treats of the vines of France and the Rhine provinces, and also of the methods of wine-making in vogue in those countries seventeen years ago—and four interesting essays published in the *Overland Monthly* (a journal now defunct) by his son, Arpad Haraszthy, Esq., the accomplished vintner of San Francisco, I have not been able to discover any original writing which bears on the condition and gradual development of the wine industry of the State. It is a pity that these four essays have not been collected and printed in book form, since they alone detail the various stages through which the vine and its products have fluctuated since 1771 down to December, 1871, just 100 years. Much as I could wish to reproduce them in their entirety on the present occasion, yet they would far exceed the limits of the present intention. For the sake of those who may read this report, however, and may reasonably expect some information about the history of the vine in California, I will extract and condense as much of them as I conveniently can. Mr. Haraszthy commences with the very just remark that “Almost every wine-growing country in the world owes its first plantation of vines to the monks; and such was

their knowledge of soil and locality that the result of their labors has gained a reputation which has outlived them hundreds of years. To their labors alone are we indebted for the wines of Johannisberg, Steinberg, Hockheim, Romanè Conti, Clos-Vougeot, l'Hospice, Chambertin, Chateau Yquem, Chateau Lafitte, St. Julien, and many others. To them we owe the bright sparkling champagne, and the famous red Hermitage, to this day identical with its parent, the Shiraz vine of Persia. The Mission St. Gabriel, in the south of the State, enjoys the reputation of having first possessed a vineyard. It is not certain how the vine was first introduced, but it is certain that the two kinds known as the 'Mission Grape' are not cultivated varieties of an indigenous species. There has been a good deal of speculation as to the way in which these mission vines arrived here, for they are not exactly identical with any now known in Spain or Portugal. General Vallejo, the best authority on the subject, considers that grape *seeds* were sent out from Spain, and this is by far the most rational hypothesis, because it accounts for the absence of identity with known varieties, since the seed would, as a matter of course, be crossed and its produce hybridized. As for once being of the wild species, they do not bear the faintest resemblance, either in fruit, leaf or wood, to any wild variety. The bunches and grapes are large, the leaf full and decidedly marked, and the joints comparatively close, while their branches are steady—characteristics that are seldom found singly, and never collectively, in any one wild species of grape vine. It matters little, however, practically, where the first vines came from. They were known to grow at the Mission St. Gabriel, and from there the planting of the 'blue mission' was extended from mission to mission, until not a single one was without it. Their methods of making wine appear to have been very rude, and none of their results seem to have made a name for itself, though it is said some preference was given to the wine of Mission Sonoma, which was probably owing more to the fine quality of the soil than to superior skill in handling. Raisins were made, and also a crude kind of brandy."

EXTRACT FROM THE REPORT OF THE ELEVENTH EXHIBITION.

The following interesting brief sketch of vines and wines is taken from the report of the Eleventh Exhibition:

"The history of the grape in California is that of the history of Caucasian settlement, civilization, and religion in the land. A hundred years ago the native grape, better known as the Mission grape, was introduced by the missionaries, and ever since has flourished. From it the Fathers of the Mission and the early American settlers made wine, and it is now used largely for the same purpose. But when the wine industry began to assume some prominence among us, and it became certain that California was about to become a wine country, a commission of experts was sent to Europe, and the first varieties of European vines were introduced into the State. The result of this wise action is now seen in the fine wines produced by us, and in the pre-eminence gained by the California product, almost as it were at a single bound. For many years, indeed, the growth of the industry was slow, it

being regarded more as illustrative of the great variety of products that the State could boast of, than as the foundation of an overshadowing interest of the land. In 1859, the whole product did not exceed 160,000 gallons, of which about one-third was exported, and many years passed away before it really increased. Three years subsequently, the yield, if anything, declined, and it had not properly recovered itself till 1863. The next year it again declined, and so it continued for several years more, advancing and declining, till it reached about half a million gallons in 1869, and since then it has rapidly increased year by year as the new vines planted came into bearing. In 1872, the export reached 1,000,000 gallons, and since that time the product has largely increased. Several causes have interfered with the marketing of California wines for the past two or three years—the want of agents in the East, the comparatively small quantity produced, and the business depression throughout the Atlantic States. Some of our wine growers have agents in large Eastern cities, and one of them went East last year himself to lay the proper foundation for a trade, but this has not been generally the case, and there are thousands of towns and cities where such a thing as California wine is not known. Various bogus descriptions of most, bearing the name, have been sold here and there, and this has injured the name of our wines, and created a dislike to them in the minds of people who have been thus unknowingly imposed upon. Then the great variety of brands existing, and the lack of large quantities of each, have deterred European buyers from purchasing them to mix with other wine. The business depression in the East has materially affected the sale of necessities, and much more so of luxuries, during the past three years.

“No interest in the State can excel in importance the wine interest; that is, the importance which it may in the future be made to assume. The greater part of all the countries in the world can produce wheat or wool, or other staples that California is pre-eminent in, but only a comparatively limited part of the earth's surface may be made to produce wine. The greater part of North America, of Asia, Russia in Europe, North Germany, Great Britain and Ireland, and some of the hotter countries of the world, cannot produce the vine in perfection, so as to allow of good wine being made from it. All the countries have therefore to import their wines from abroad, and the number of countries from which they may import them is limited, as many wine producing countries make no more than is needed for their own consumption, and some not even that. There is at present only one great wine exporting country in the world, and that country is France. Most French wines are high priced, and not therefore suitable for consumption of the majority of the people that would use them; so that a fine market, and that market the world, is offered to that people who shall produce a good and cheap wine. The consumption of any article is directly proportioned to the price of it—if the price is moderately low, it is large; if it is high, it is restricted. If, therefore, California can produce good and cheap wines, she has an illimitable market for them, and then before the importance of the wine product, that of the gold, silver, wool and wheat of the coast aggregated may pale their ineffectual fires.

“France, as we have noted, sells high priced wines, yet the grape and wine crop of France is the greatest of all her crops in value; is greater in value than all her other agricultural products; greater in value than any of her manufactured products, important as so many of them are. It is worth annually two hundred and fifty millions of dollars. It paid the French indemnity, and left France stronger and richer than her conqueror, still *La Grande nation* of Europe. There is nothing chimerical in looking forward to a similar future for California, so far as the industry is concerned. It has already taken deep root in the State as a leading industry, and wine is looked upon throughout America as a distinctive Californian product. Ripened well by our long dry summer, the grapes grown on our hillsides are far better fitted for producing that Olympian nectar, which gladdeneth the heart of man, than are that of any other portion of the United States, save perhaps New Mexico and Arizona.

“The quantity of land in the State suitable to grape growing is very great; not less than 30,000,000 acres, large tracts of which are unfitted for anything except grape or fruit culture. Hillsides, that to the ordinary agriculturist filled with the traditions of centuries garnered in other lands, would seem desert, barren and wild, are to the skilled viniculturist full of promise, and when covered with gaily trellised vines will, so far as financial results are concerned, leave the richest soil of our rich valleys far behind.

“The fostering of the wine interest of the State is, therefore, one of the most important duties of the merchant, the legislator, or the directors of an institute so intimately connected with all the great industrial interests of the land as this is. There exists a fine field for the introduction of California wines not only to the public of the United States, but to the people of a great part of the world. The greater part of the foreign wines now imported into the United States, and the greater part of wines imported into other countries, are largely adulterated in a great number of cases, perhaps so much so as to be prejudicial to public health. The work of superseding these wines by the pure juice of the grape ought not to be one of any exceedingly great difficulty, and duly accredited by the officers of an institution such as this, our wine makers would find many obstacles easily removed from their path. Such credentials would do much to counteract the antagonistic influence exerted by such as they who in Philadelphia lately exhibited such an antagonism to the wines of California.

“There was present, also, the famous Eclipse, which has obtained for itself a local habitation and a name as among the famous wines of California, and thus forces upon us the conviction of how much better it would be for the wine makers of the coast if they adopted some such happy titles for their wines instead of christening them by European names, chosen from fancied resemblances in appearance and taste. The term Eclipse is sufficient to sell wine, bearing it almost anywhere, even in the heart of the best wine districts of France, where California Ports, Sherries, etc., are apt to be confounded with European Ports, Sherries, and to lose their individuality as California wines, and suffer in their sale accordingly. We confess we like the terms Eclipse, Mound Vineyard, Catawba, Gerke, Landsberger, Perle de la Califor-

nie, etc., and the public like them, too, and there is everything in a name. Who does not feel his imagination fired, and every particle of poetry in his being waked into life, at the mere mention of the names of the glorious wines—the product of the sunny shores of the Mediterranean, the land of beauty and song. A good name is a passport everywhere, and if California wine growers are wise, they will give good names, new ones, and racy of the soil, to the product of the vineyards, and then they will become known and appreciated in every land in the world.

“As wine improves with age, and as it commands a price in the markets of the world proportioned to such age, the inconvenience felt by many financially will be more than repaid by the increased prices which it will bring in New York, Chicago and St. Louis. The opposition manifested to California wines by interested parties at the Centennial will not work much to their injury, as the motives of these gentlemen are well understood and appreciated, and as the hundreds of thousands who went to Philadelphia had and still have an unequalled opportunity of seeing and judging for themselves, and through these visitors the fame of the product of the California grape will be carried to hundreds of places that, it is safe to say, never heard much about it before. And with this, and the establishment of small agencies all over the country, it is safe to predict that within a few years the California wine would become the beverage of the country, supplanting Bourbon straight and lager. We shall have to make more than ordinary efforts to get rid of our surplus of wine. The whole crop has increased steadily year by year. Last year it equaled 7,000,000 to 8,000,000 gallons; this year it will equal 10,000,000 gallons, or exceed it, while in 1877 it will probably be 12,000,000, and still as new ones come into bearing will be greater still. There is hardly a county in the State that is not suited to the production of wine, while some are pre-eminently so, and, as stated in the beginning of this report, the land suited to it is not less than 30,000,000 of acres, an area equal to that of many an older State. All these counties have not as yet entered into the industry with spirit, but they will all fall into line one after the other, as the experience of farmers in adjacent counties encourages them. Los Angeles, which has had the honor of being the pioneer in the business, still heads the list, and in conjunction with San Bernardino, which adds a slight contribution, will lead off with 2,000,000 gallons this year. Making a big stride from this to the north of San Francisco Bay, we next meet with the fertile county of Sonoma, which will yield this year at least 1,300,000 gallons, distancing all other counties outside of the extreme southern section of the State. Napa, the neighbor of Solano, will send to market or store 1,125,000 gallons. The counties of Sacramento and Yolo, equally rich and fertile, and near to a port of shipment, will not produce 750,000 gallons this year. Another county north of the big Solano will yield 600,000 gallons; one south of it, the fertile county of Santa Clara, will not fall behind its northern neighbor. The great wheat county of San Joaquin will market half a million gallons, while the two mining counties of Placer and Tuolumne will do as well as those just mentioned.

“Turning again south, we find Santa Barbara producing a similar amount, while the balance of the counties in the State may be unitedly credited with

nearly a million gallons in the aggregate. There are some very heavy growers in these counties, men who have made a special business of it, and many others who, while not growing largely, buy largely of those who do grow, and manufacture large quantities every year. Not all grape growers are fitted by nature or education to become wine makers, and not all wine makers, especially in California, are experts in viniculture. Sonoma and Napa contain the largest number of large growers and manufacturers, the former county having five that range from 100,000 to 180,000 gallons a year, five that make 50,000 gallons and over, seven that make 20,000 gallons and over (the most of them over 40,000 gallons), and others of smaller dimensions. Napa has one wine maker who claims to produce a quarter of a million gallons every year, one who makes 125,000 gallons, four who make 50,000 gallons and over, and three who make 20,000 gallons and over.

“One firm between Los Angeles and Sonoma counties claim to make half a million gallons yearly, while another in Los Angeles makes 100,000 gallons. Sacramento County boasts one who makes a quarter of a million gallons, and one of 70,000. Tehama has an estate producing 160,000 gallons a year, and San Joaquin is producing 100,000 gallons annually. Of champagne, there is made in the State about 50,000 gallons yearly, from natural fermentation, and a small quantity where artificial means are used. This we regard as a highly reprehensible practice, and calculated to injure the good name of California wines abroad.”

NOTES BY REV. DR. BLEASDALE ON CALIFORNIA WINES.

There are few, if any, sources of national wealth of greater importance to sub-tropical countries than the cultivation of the vine. For, while the region of its highest productiveness is limited, the demand for its produce in one form or another is universal. No habitable country can be named between the equator and the poles, in which, either as wine, brandy, fresh fruit, or dried, there is not a ready market for it. At the present time this is eminently the case. During the period of the active destruction of vines by *Odium*, stocks of wine and brandy were vastly reduced and prices raised; and now that the devastating pestilence of *phylloxera* has laid waste vast tracts of vineland in France and Southern Europe, there is every inducement for new countries to extend their vineyards and perfect their wines. To effect this to the most lasting and profitable advantage, three vital points have to be carefully attended to, viz. : the character of the land chosen for the vineyard, the kind of vines best suited to it, and the management of the wine cellar. These points are essential to success, and in order to attain to them, much individual observation is indispensable, and cordial interchange of experience among *Vignerons* and wine treaters; in fact such mutual confidence as exists everywhere in the communes of the wine districts of France and Portugal.

The time will come when the mineral wealth of this richest of States will give out, as it has given out in every part of the world; while agriculture, suited to the soil and climate, will, if properly

conducted, never be exhausted. Experience has put it beyond question that no country in the known world offers greater inducements to extend and perfect the wine industry than does this State. And it is to this important source of national wealth that the Trustees, in the interest of the public, invited the earnest attention of all who desire to advance its extension; for, considerable though it be at present, it has as yet hardly passed beyond the bounds of tentative experiment, whether we regard the various sorts of the vines or their fullest adaptation to the several different soils and climates. Moreover, the vine, though on the whole capable of thriving over a very wide range of the earth's surface, attains its perfection of growth and productiveness only in sub-tropical regions like California; and it is noteworthy that any given variety of the plant removed from one country to another undergoes changes, if not in appearance and habit, yet in the result of its products—the wine. Vines such as the Chasselas, the Tokay, the Carbinet, produce wines in this country, good in their kind, but hardly to be recognized by those who know them only in the colder wine countries of Europe. Again, the methods of treating the musts and maturing the wines demand modifications adapted to each region in which they are to be employed. Methods capable of drawing out all the highest properties of musts in France or Germany hardly ever suit those produced in countries 16 or 17 degrees nearer the equator. Hence the value of experiments and investigations in this country by students of wines who have acquired their knowledge during many years under climatic conditions not very different from those for which this State is famous. Moreover, the same kind of vine transplanted to different countries, no matter how closely the climatic conditions resemble each other, will always throw out recognizable differences in the wine—*e. g.*, the Riesling is most extensively grown in the Rhine districts, yet even along the river hardly two vineyards produce wines that cannot be recognized as distinct. The same kind of vine planted on the banks of the Tagus above Lisbon gives the rich, well-known “Bucellas,” with no appreciable resemblance to Hockheim; while in Australia, according to climate and soil, it produces such a range of degrees of color, spirit strength, body and bouquet as to puzzle even the most expert wine judge to verify it at first. So that there exists a moral certainty that the vignerons of California have not yet acquired all the practical knowledge attainable.

If, then, we reason by analogy, we must conclude that the country has vinous peculiarities that ever must distinguish it, to perfect which in the highest degree, will be the proper aim of the intelligent wine-treater, and in the long run he alone will succeed—*palmarum qui meruit feret*. There is ever something about original work to distinguish it from imitations and copies. If Catawba had been an imitation wine, would it ever have attained to fame? Every one who tastes it recognizes its special and unique character.

WINE IN RELATION TO THE HUMAN SYSTEM.

Pure, natural wine is a very compound fluid. Among its principal constituents, such as are at all times present in it, are water, spirit of wine, tannic

acid, tartaric acid, phosphoric acid, racenic acid, malic acid, sugar, and oxide of iron and potash, with generally a small quantity of lime. These are the more prominent but by no means the only ingredients of pure wines. The bouquet, as it is called, is a true ether, and is formed by the action of the acids on the alcohol in a nascent state, and the flavoring principle of the grape, from which each distinctive bouquet is derived. The iron, potash, phosphoric acid and lime are taken up from the earth, the elements of the acids, the sugar, alcohol, etc., from the air and water. A glass of genuine wine contains a varying quantity, generally about one-fifth of its bulk or a little more, of proof spirit and four-fifths water when not fortified. The proof spirit, in pure wine produced by fermentation, differs widely in its action upon the human system from a mixture of distilled spirit and water; for in wine it is not a mere mixture, but a combination, and it stands in chemical relations with the tannic and tartaric acids and iron. Tannic acid is a powerful astringent and tonic, while tartaric acid combined with the potash and iron, has its own peculiar action on the human economy. It is evident that pure wine must be slowly digested before it can get into the general circulation; and it is also plain, that it more nearly resembles the nicely adjusted prescription of a physician than ought else. And it is a prescription intended by the greatest of all physicians, not alone as a restorative, or alterative for the deranged functions of the body, but one meant primarily to strengthen and promote the well being of the healthy frame, and at the same time intensify the sense of enjoyment of life. It is both an element of food and a luxury, and designed by a beneficent Providence for the use of His creatures in every clime that brings the grape abundantly to its natural perfection.

If space permitted, nothing would be more pleasing to myself than to illustrate by examples the wonderful and merciful providence of God in maintaining His creatures in existence, health and comfort, through every zone, from the equator to the poles, supplying them whatever is needful under the very different conditions of soil and climate under which their existence is to be carried on. I can but glance at the subject, however, and content myself for the present with saying that what animal fat, oil, tallow, clothing of skins and feathers are to the Laplander; what his sugar and starch food, no matter whence derived, and his almost naked skin are to the equatorial African; what his bitter beer is to the inhabitant of Northern Europe; that his wine, and a moderate quantity of animal and vegetable food, are to the inhabitants of sub-tropical climates all over the world. Again, if opportunity allowed, it would be instructive to take up the line of illustration so exquisitely indicated by the late M. Babinet, of the Institute of France, and trace the action of Providence in the wool, hair, feather, skin and other integuments of animated nature in the several zones. At present I can only allude to it. So if we reason consecutively, we shall find that every climate has its appointed conditions under which alone will the human economy be healthy and vigorous. We cannot here subsist on the starch food which maintains in health and strength the inhabitants of equatorial regions; nor can we think of sustaining life for any considerable length of time on the fish, oil, tallow and

dried flesh of the Laplander, or the man of Kamschatka. The beers, and, in moderate quantities, also ardent spirits, so useful in damp northern climates, and the strong tea of China, when taken in excess, produce diseases in hot, dry regions, on which learned physicians grow eloquent, and from which are derived in no small degree, the need of the physician, and the waste of health, not to speak of the miseries of declining life. Health depends upon the vigorous tone of the nervous system. The prolonged enjoyment of life depends wholly on that great instrument in the human system—the liver. Tea and such like act strongly indeed on the nervous system, but on the whole are comparatively harmless. Malt liquors and ardent spirits loads the system with carbon; well enough for the production of animal heat, but this heat is not required where the atmosphere supplies it abundantly, as is the case with sub-tropical climates.

When the temperature is not low enough to require an inordinate supply of carbon to maintain animal heat, then, as any excess of carbon must go somewhere and be got rid of somehow, the liver and kidneys have to do the work when they are perhaps already overtaxed. I trust I am neither a theorist nor a quack. I hate quackery of all kinds; and all through my life I have felt convinced that theories are useful in so far as they serve to arrange and probably harmonize a string of facts. The fact is, in the present instance, that liver and kidney diseases are nearly unknown in wine-drinking countries—the hob-nail form of liver disease, certainly; while I learn that here in California rotten liver is common whenever an autopsy is performed. If beer and spirits have beneficial work to do for poor human nature anywhere, it is not in these sub-tropical regions.

The vine had been introduced into the colony of New South Wales some 80 years ago, and a little wine made, but it did not assume the dimensions of a separate industry anywhere in Australia before 1860, and so started nearly at the same date as it did in California. Its progress in Australia has been very much slower than here. But it appears to me that more study has been bestowed in bringing the best kinds to perfection than here. Nor have we to look about long for the reason. Men of means alone could enter upon vineyard industry. It was new and labor was dear, and four years at least must elapse before even a small return could be hoped for. But, on the other hand, no pains were spared to obtain the most esteemed varieties of vines and to follow out thoroughly the highest kind of cultivation, and the best French methods of wine making and cellaring. The immediate consequence was that in all the higher lands and cooler districts the French vignerons showed at once that they could make the best red wine, and the Swiss and Germans the best white. But when once their processes, so successful in cooler districts, were applied to the intensely hot and dry ones in the valley of the Murray, they had not merely to be modified, but changed altogether to those which generally obtain for making pure wines in the south of Portugal and Spain. Of course, manufactured Port and Sherry (factory wines) are a different affair.

Now, since my arrival in California, I have had, through the kindness of a large number of growers and merchants, an opportunity of seeing and dis-

tilling, and otherwise analyzing, most of the characteristic wines of the country. It is true I had seen many samples of California wine in Australia, but I then thought, and now find that they did not adequately represent the present favorable condition of California pure wine—an evidence that lapse of time and experience are telling for the better on this as upon other new industries.

The wines submitted to the Judges were sent from the vineyards of Sonoma, Napa, St. Helena, Calistoga, Mission San José, and Butte County, and, although each of those districts was represented by only a small number of samples from each district, still they showed to a reasonable extent the capabilities of the several localities, and also the methods employed in making and maturing them. There was a very visible line of divergence from the Schramberg white wine from near Calistoga and the stein-wine character, firm, dry and flinty, to the rich full-bodied produce of the cellars of Messrs. Kohler & Frohling; while the varieties of grapes grown in the different districts were nearly the same. Aspect of the vineyard, state of ripeness of the grapes, methods adopted in fermenting the musts, and perhaps the character of the soil itself, in some places, furnished varieties of wine as different as might be met with between Mannheim and Lisbon. Each of these districts seems formed by nature to be the home of a numerous and prosperous viticultural population. Nature has gathered all the essential requisites together there. The corn lands situate in the valleys are the result of alluviums from the hills, and are rich in all kinds of plant food, abundant evidence of which are to be seen on all sides, in the corn and grain crops, the orchards and extensive vineyards. With one exception the vineyards are situate on the flat or gently rolling plain, and only here and there do we observe a few vines creeping, so to say, a few rods up the lowest breast of the foot-hills. And pleasant as it is to contemplate this fertility of vineyard and orchard, one cannot altogether forget the advice so often repeated in southern Europe, "*Never plant a vine where wheat can be profitably grown.*" There will, of course, always be plenty of land that will hardly pay if put under cereal crops, and much that will not bear them at all. In sub-tropical climates these lands are the native soil of the vine and the olive.

The sunny slopes of the foot-hills, once heavily covered with timber, now cut down, are now covered again with scrub and young wood which has sprung from the stumps and roots of the old, and has clothed them again with verdure. Now, wherever that verdure can hold its own, the profitable vine and olive trees can also. That all these picturesque uplands and hills could be easily converted into vineyards and olive groves, and, if some irrigation could be secured, into fig and prune orchards also, there is abundant evidence in the success which has attended the labor of Mr. Schramm, of Schramberg, situate several hundred feet above the plain of Calistoga, in converting the higher slopes of a hill into a vineyard, a fig orchard, and with present promise of an orangery likewise. Mr. Schramm has the honor of being the successful pioneer of hill-vineyard cultivation. In such situations as his—and they are numberless in the hills which enclose the valleys of Napa and Sonoma—those wines can alone be produced whose merit lies chiefly in firm-

ness, fineness, bouquet and aroma. And there is visible in the populations of all wine yielding countries an existing and increasing preference for light, aromatic, dry wines, especially white wines, of medium or even less than medium spirit strength—wines that exhilarate without attacking the head, when used as wines should be used. In climates such as those of Sonoma and Napa, French methods of making and treating red wines will certainly prove the best, and German for all light kinds of white wines. With proper care and skill in the selection of sites, and of the four or five varieties of vines that previous experience has proven to be the best suited to the soil and climate, and no more, there is no reason why those districts should not vie with the most famous in the Old World.

VISIT TO NAPA.

Not having been able to visit all the vineyards of this district, I will select as their representative that of Mr. Groezinger, the most extensive and by far the most important in the district of Napa. The vines are for the most part planted on a gently rolling plain, with Riesling, Traminer (Chasselas) and Tokay for white, and Zinfandel, Malvoisie and Burgundy for red kinds. Of course, there are smaller numbers of other kinds. When I visited it, early in September, the promise of the season's vintage was cheering, and nothing could exceed the attention and care bestowed upon it. One could not discover a weed anywhere.

Through the kindness and polite attention of Mr. Groezinger, who happened to be at the vineyard on the occasion of my visit, I was afforded an opportunity not only of seeing and riding through the vineyards, but also of inspecting his noble wine cellars, and most complete appliances of all kinds for making, treating and keeping wine on the great scale. The cellars are almost palatial, and the internal fittings in keeping with the buildings. The staple wines made here are Claret from Zinfandel and blends of it, and Burgundy from the Black Malvoisie and blends of it, and white wines of the Hockheim description from Riesling, Traminer, Tokay, and mixtures of grapes. I had the opportunity afforded me of tasting and seeing quite a number of pure wines—all good in their kinds—but I could not help remarking that the young wines, those of the last two years, showed an evenness and fineness of texture not to be always found in those of greater age. This is one of the results of study and experience in a new country.

ST. HELENA.

I consider the vineyard of Mr. Krug the representative one of the district of St. Helena, situated as it is about a mile from the town. It is extensive in area, but only very little variegated by hill and valley; the soil the same kind of rich sandy and clayey loam which is visible everywhere in the bottom lands of the valley from its remotest commencement below Napa to Calistoga.

Mr. Krug is a buyer of grapes as well as a large grower, and carries on a large business in the production of native wines. I was privileged to enjoy his generous hospitality for a few days, and rambled about in his own and

neighboring vineyards. The crops looked healthy and abundant, though the Zinfandel, the best red grape for these valleys in California, showed mildew of a white filmy character in some places, and other kinds of grapes were more severely affected. The defect appears to lie in the manner of pruning, which is everywhere and for all kinds of vines the same unvarying short spur method, allowing the grapes (or most of them) to rest upon the ground, and not unfrequently exposed to the sun's heat in the upper portion of the bunches. I noticed some of the neighboring vineyard proprietors attempting to alleviate this evil by shifting the stronger branches of the vines so as in some spots to shelter the grapes and in others to expose them to the sun. There can be but little doubt that long pruning and training to iron wire trellises or espalliers would vastly benefit both the vines and the grapes. There are, of course, quite a number of methods of securing the advantages of long wand cultivation without the expense of espalliers or interfering with customary cultivation of the vineyard, though I think not generally if at all known in any part of the State which I have had the opportunity to visit.

Having in my possession the very valuable reports of the Royal Commissioners for the vineyards of Portugal, I applied to the Managers of the Thirteenth Industrial Exhibition for means to have engraved about ten specimens of pruning and training, found by ages of experience in Portugal, Spain, south France, and of late years in Australia, to have yielded the happiest results both in cultivation and produce, the request was at once complied with. These will be found further on, accompanied by such remarks as seem advisable. Though, as will be observed, they are considerably varied, yet they all aim at securing the same results—namely, the health of the vines and the quantity and quality of the produce, which, for wine purposes, depend so entirely on the exactly equal maturity of every grape on the bunch and every bunch on the vine. I noted everywhere one unpardonable neglect in cultivation. While the vineyards were free from weeds and had had the requisite amount of plowing and scarifying, the earth between the rows was left just as the plow or scarifier left it. Now, at both the final spring cultivating and at the last cleaning up when the grapes are full grown, it is of first-rate importance that the earth between the rows should be rolled as even and level as possible, which, with a moderately light four-foot six-inches roller, drawn by one horse, would soon lay it down like a garden walk. This treatment, of course, tends to keep the moisture in, but, more than all, to utilize the upward radiation of the sun's heat. By this more than by aught else the even ripening of the grapes on the bunch is secured in southern Europe, and the reward of it is found in the value of the produce. At the present time nearly all the benefit of this radiation is lost. Were it turned to the best account both by the method of pruning and the evenness of the surface, I hold the opinion that mildew of grapes, of the kind I saw, would at once disappear.

While the guest of Mr. Krug, I visited his cellars and saw all his appliances for wine-making and maturing, and can only praise them. They seemed about as good as money could make them, and probably more expensive than there was any need for. As business of many kinds, and the needs of the then approaching vintage were upon him, he was probably prevented thereby

from sending before the Judges the wines which he intended to send. Not having been before the Judges, nor for special private study before me, I can only in this place say that there was every opportunity afforded to me to examine them in the wood, and that, as a private opinion, they would take rank with most that I saw in the valley, slight differences of treatment being allowed.

SONOMA.

About thirty miles distant from San Francisco stands the town of Sonoma, in the picturesque and fertile valley of that name, enclosed by mountains of no great elevation. The quiet scenery is exquisite, comprising as it does those elements which, when met with together, render a landscape charming—hill and valley, mountain and river, luxuriant vineyards, gardens blooming and fragrant with flowers, orchards of great extent bending under their loads of many kinds of fruit, and neat white dwellings and homesteads nestling in a wealth of evergreen foliage. Nature surely has done much towards forming a paradise, and man has contributed something to adorn it. The climate resembles that of Dijon or Auxierre in central France—mild and genial all the year round. As may be supposed, the vineyards and their produce assimilate in a marked manner to those of the warm valleys and sunny slopes of Burgundy.

During my first visit, in early summer, I was the guest of General Vallejo, the genial and hospitable patriarch of Sonoma. From him I learned much about the early history of the vine on the Pacific slope, and also about the comparatively recent introduction of European varieties by General Haraszthy. There for the first time I witnessed the ravages of the phylloxera on a great scale, and, to any one with a feeling for the destruction of man's labor and hopes, it was truly depressing. While the vintage was yet in progress, I had the good fortune to spend a few days at the elegant and hospitable mansion of Col. G. F. Hooper, situate on an elevation some four miles from Sonoma, with the low foot-hill directly at the back and in front vineyards sloping down to the river. All this is a lovely country, take it from whatever point we like.

Sonoma Valley is the ground on which the European vines introduced by General Haraszthy were first put to a practical test. Here his princely efforts to extend viniculture, and the vast cellars dug out of the rock which he constructed, in rivalry of those of his native Hungary, will keep his memory fresh for many a generation. From hence viniculture as an industry spread abroad in central California and prospered. But now and during the last few years, that fearful scourge of the vine and of the viniculturist, the phylloxera vastatrix, has established itself, and has been steadily extending its ravages. Millions of vines have already perished and are perishing, and there seems to be no stay to its progress.

During my sojourn at Mr. Hooper's, I had the advantage of the society of Professor Hilgard, Professor of Agriculture in the State University. In company with him, I visited those vineyards where three years ago he first determined its presence beyond doubt. Very many acres of once fruitful vineyard have been already dug up, and the ground cultivated to grain crops. Profes-

sor Hilgard has some hopes, which appear to have a reasonable foundation, that the disease, being one indigenous to America, will prove less virulent than it seems to have been in Europe. It is, however, wonderful that, when the fact of its being present was ascertained, no combined effort was made to stamp it out. The kind of vines cultivated by Mr. Hooper and most of his neighbors are substantially of the same kinds. His wine presses are of the old-fashioned kind called by the Portuguese *varra e parafuso*—lever presses, erected out of doors. Yet, as I have often witnessed in Portugal, they turn out good musts; and certainly he has no need to discard them if we refer to his success as a wine-maker, as shown by the opinion of the wine judges, recorded on another page. Far be it from me to throw a slur on modern improvements in the wine press or the cellar; still, I think one branch of wine making is not unfrequently sacrificed to another because the prevailing opinion resting on theoretical chemical considerations appears for the present in favor of it. The thorough aerating of the musts, more especially of the red musts, lies at the bottom of perfect fermentation, and upon that the future life of the wine depends. And here I would direct the reader's attention to the importance attached by all the best Portuguese wine makers to thorough aeration of the must, which they accomplish by treading with bare feet. But this treading is continued with little or no interruption for 12, 20, or often enough 30 hours! Now, do the plans in use in this country effect any such object? I have neither seen nor heard of any appliance in use which would effect a twentieth part of it; still, it could be done easily enough by machinery. Any one well acquainted with the chemistry of fermentation of strong, highly saccharine musts will understand this at a glance. When fermentation has once fairly set in, the liquor can no longer be aerated. It has gotten all the airing it is to have; and if that be insufficient, what wonder if the wine should soon become diseased?

CLASSIFICATION OF SAMPLES BY THE JURY.

NAME OF DISTRICT AND LOCALITY.	NAME OF GROWER.	No. of samples sent by exhibitor	NAME OF WINE.	COLOR.	DATE OF VINTAGE.	CLAS'IFICAT'N BY THE JUDGES.			RETAIL SELLING PRICE IN SAN FRANCISCO.	
						Third ..	Second .	First ...	Per Gallon.	Per Dozen.
Mission San José.....	Mr. Keene..... (Exhibited by Mr. Woods.)	.....	Burgundy.....	Garnet Red....	1876.....	.....	.....	1	.....	.....
			Zinfandel.....	Purple.....	1877.....	.....	.....	.....	.....	.....
			Malvoisie.....	Red.....	1876.....	.....	.....	1	.....	.....
Stanislaus County.....	Mr. Palmer, San Fran'co	2	Frontignan.....	Amber.....	No date.....	.....	1	.....	\$2 50	\$5 50
			Port.....	Red.....	No date.....	.....	.....	1	2 50	5 50
Calistoga..... (Schramberg.)	Mr. Schramm.....	2	Schramberger White.....	White.....	1874.....	.....	.....	1	.....	.....
			Schramberger Red.....	Garnet Red....	1875.....	.....	.....	1	.....	.....
Upper Sonoma Valley..	Kohler & Frohling .....	.....	Port.....	Garnet Red....	No date.....	.....	.....	1	\$2@ \$4	\$5@ \$10
			Tokay.....	Brown.....	No date.....	.....	.....	1	\$1 50	\$5 00
			Angelica.....	Amber.....	No date.....	.....	1	.....	2 00	6 00
			Riesling.....	Straw.....	No date.....	.....	.....	1	1 25	4 00
			Zinfandel.....	Purple.....	No date.....	.....	.....	1	1 25	4 00
			White Wine.....	Amber.....	No date.....	.....	1	.....	1 00	3 50
			White.....	Yellow.....	No date.....	.....	.....	1	1 00	3 50

CLASSIFICATION OF SAMPLES BY THE JURY.

NAME OF DISTRICT AND LOCALITY.	NAME OF GROWER.	No. of samples sent by exhibitor.....	NAME OF WINE.	COLOR.	DATE OF VINTAGE.	CLAS'IFICAT'N BY THE JUDGES.			RETAIL SELLING PRICE IN SAN FRANCISCO.	
						Third..	Second.	First...	Per Gallon.	Per Dozen.
Sonoma.....	Mr. Gundlach.....	8	Gutedel.....	Golden.....	1870.....	.....	.....	1	.....	\$7 00
			Gutedel.....	Golden.....	1875.....	.....	1	.....	\$1 25	6 00
			Claret.....	Purple.....	1874.....	.....	.....	1	1 50	4 50
			Young Claret.....	Garnet Red.....	1876.....	.....	1	.....	1 50	4 00
			Riesling.....	White.....	1875.....	.....	.....	1	1 25	6 00
			Traminer.....	Pale White.....	1874.....	.....	.....	.....	1 50	6 00
			" another sample.....	White.....	1874.....	.....	1	.....	1 50	6 00
			Riesling.....	Yellow.....	1874.....	.....	.....	1	1 50	6 00
Napa and St. Helena....	Mr. Groezinger.....	8	White Wine.....	White.....	1875.....	.....	.....	1	\$1@1 25	\$3@3 50
			Claret.....	Ruby.....	1875.....	.....	.....	1	\$1@1 25	\$3 50@\$4
			Angelica.....	Straw.....	.....	.....	1	.....	\$2 00	\$4 50
			" another bottle.....	Golden.....	.....	.....	1	.....	.....	.....
			Sherry.....	White.....	.....	.....	1	.....	2 00	4 50
			Zinfandel.....	Red.....	1874.....	.....	.....	1	1 25	\$3 50@\$4
			Sherry.....	White.....	1874.....	.....	.....	1	2 00	\$4 50
			Traminer.....	White.....	1875.....	.....	1	.....	\$1@1 25	\$3 50@\$4

CLASSIFICATION OF SAMPLES BY THE JURY.

NAME OF DISTRICT AND LOCALITY.	NAME OF GROWER.	No. of samples sent by exhibitor.....	NAME OF WINE.	COLOR.	DATE OF VINTAGE.	CLASSIFICATION BY THE JUDGES.			RETAIL SELLING PRICE IN SAN FRANCISCO.	
						Third..	Second.	First...	Per Gallon.	Per Dozen.
Sonoma..... (Four miles from the Town of Sonoma.)	Colonel G. F. Hooper...	11	Table Claret.....	Purple.....	1876.....	.....	1	...	\$0 45	.....
			Table Claret.....	Ruby.....	1874.....	.....	.....	1	65	\$4 50
			Table Claret.....	Purple.....	1876.....	.....	.....	1	45	.....
			Zinfandel.....	Purple.....	1877.....	.....	1	.....	.....	.....
			*Claret.....	Ruby.....	1874.....	.....	.....	1	65	4 50
			Mission.....	Golden.....	1873.....	.....	.....	1	1 00	6 00
			Tokay.....	Yellow.....	1874.....	.....	.....	1	1 00	6 00
			Light Claret.....	Ruby.....	1875.....	.....	.....	1	55	.....
			Chablis.....	White.....	1874.....	.....	1	.....	1 00	6 00
			Medium Claret.....	Purple.....	1876.....	.....	1	.....	45	.....
			Young Claret.....	Purple.....	1877.....	.....	.....	1	.....	.....
.....	Landsberger & Co.....	12	Mission.....	White.....	1866.....	.....	.....	1	.....	.....
			Mission.....	Golden.....	1869.....	.....	1	.....	.....	.....
			White Zinfandel.....	White.....	1876.....	.....	.....	1	.....	.....
			Riesling.....	White.....	1876.....	.....	.....	1	\$1 00	\$5 00
			Noble Wine.....	Golden.....	1875.....	.....	.....	1	.....	.....
			Young Zinfandel.....	White.....	1877.....	.....	.....	.....	.....	.....
			Mission and Blendsfit.....	White.....	1876.....	.....	1	.....	75	3 50
			" " " ".....	White.....	1876.....	.....	1	.....	75	3 50
			" " " ".....	Garnet Red.....	1877.....	.....	.....	1	60	3 00
			" " " ".....	Straw Color.....	1869.....	.....	.....	1	Quarts. \$14 00	Pints. 15 50
			Eclipse Champagne.....	White.....	1869.....	.....	.....	1	1 50	6 00
			Port.....	Ruby.....	1874.....	.....	.....	1	.....	.....

* This wine is the only sample that received the full number of twenty marks.

PORTUGUESE METHODS OF MAKING WINE.

In the vineyard region of the Douro a regular and uniform method of making wine is established, which long practice has shown to be the most effective in the production of fine and generous wines which are known in commerce as Port, or factory wines. Every one knows that the good qualities of the wine depend on a concurrence of essential conditions—some coming directly from nature; others from the wish and intelligence of men—and that all these are subject to variations, capable of exerting considerable influence on the product. The nature of the soil, the situation and exposure of the vineyard, the kinds of grapes which are most used, the climate and the state of the weather, the time and uniformity of the vintage, the care bestowed in the selection of grapes and the removal of the damaged portions of the bunches, the regularity and scrupulous neatness of everything that is done during the making of the wine, and finally the good condition of the wine-presses and vats, and the conscientious and severe (*severo*) treatment of the wines in the cellars until they are perfectly made, are the ruling conditions which determine the goodness of the product. It is the universally received opinion that in order to make Port wine, it is indispensable to gather the grapes as soon as they attain their full ripeness, that the *lagar* (the stone chamber in which men tread and press grapes) should be filled in the shortest possible time; that the grapes should be completely and even violently trodden; that it is desirable to promote a tumultuous and violent, uninterrupted fermentation; that the must should be drawn off into the vats as soon as it gives out the smell and taste of wine, and when, though some sweetness may remain, it manifests the astringency and smack of the pummice, at which time good wine brandy to the extent of from 4 to 8 per cent. should be added.

As a specimen of the methods adopted in making generous Port wine by the most scrupulous wine makers of the Douro, I will relate that followed by Senhor Sampaio. As soon as the grapes have been gathered and selected with all care, separating and throwing aside all dry, rotten, unripe or otherwise imperfect berries, they are put in the *lagar*, and care is taken to fill it in the shortest possible time. The *lagars* are generally large, and their capacity bears a strict relation to that of the vats, so that these may be filled with the must without interruption, and be all of the same quality. As soon as the *lagar* is full the men enter it in number sufficient to effect a complete treading right off. This is generally done by treaders at the rate of three to the pipe, who, with their feet well washed, tread them for at least six hours uninterruptedly during the first night. Next day the work is continued with fewer men—two to the pipe—and then commences the watching of the fermentation. Should the fermentation not progress favorably, some adopt a reasonable and never-failing method of starting and accelerating it. They put in a quantity

of the warm hulls, etc., of a recent pressing, when they can have recourse to this help. As soon as the fermentation has been established and has become very active, some men go into the *lagar* again to tread down the head or cap which has arisen, causing thereby a more complete disengagement of the coloring matter, which can alone be obtained at the cost of the alcohol already formed. From this time onward the men are no longer needed at the *lagar*, but unremitting attention is bestowed upon the fermentation. They take notice if the temperature falls, if the froth or scum becomes less in volume, if the cap begins to detach itself from the covers of the *lagar*. As soon as the vinous odor is well pronounced, when the sweetness of the must has diminished and the astringency has become sensible, they take a proof, by pouring a portion of the must into a pure white porcelain plate to see if it has a sufficient body and color, if it form little bubbles (*lagrimas*—literally, tears) as it runs over the porcelain, and finally if the smell and taste of wine and the astringency and roughness are well known. It is then drawn off into vats, and even as it is run in, brandy in the proportion of from 4 to 8 per cent. by measure is added. The pumice is then pressed, and the pressings added to the new wine. The bung-hole is kept open till November, only covered to keep flies and dust out, and then it is firmly closed and left so till it is ready to be wracked into pipes, with a fresh addition of brandy to enable it to arrive in safety to the stores at Villa Nova de Gaya, whence it passes into commerce. Wine made in the above manner does not attain to maturity for some years, during which they receive much attention, and of course the price advances accordingly. When these wines have been made with all care, with grapes of good kinds, in the state of complete maturity and produced in favorable situations, they need nothing but the action of time, of wracking at regular periods and airing, with gradual addition of good brandy, to place them in the rank of superior wines.

The above method has been modified many times to meet the requirements of commerce; for the tastes of consumers, almost always capricious, demand sometimes very full-bodied wines, loaded with color, aromatic, strong with alcohol, and at the same time sweet; at others, lighter wines, spirituous and dry, with the relish of old wines. And on these accounts the wines of Oporto have always an artificial aspect.

As the restrictive legislation (the Methuen treaty) which remained in force for more than 100 years limited the wine of export to England to one type only, all wine makers strove to reach this type, and not being able to do so in the normal way with their own genuine musts, they had recourse then to artificial preparations more or less efficacious—for example, georopiga, to give body and sweetness; to extracts of elderberry, to give color; and to excess of brandy, to give them force. These kinds of preparations have been largely used.

The vastly largest portion of what passed until lately for pure Port, such as a private importer might obtain for special purposes, would not be better than the kinds just described; and, if it be a bad example to imitate, what must the California imitation of it be?

The following is the method of making Port wine used by Royal Commissioner the Viscount Villa Maior, for many years Professor of Chemistry in the Polytechnic School, himself a wealthy and extensive vineyard proprietor in the very heart of the Port wine districts of the Upper Douro:

“The making of my wine has been conducted with extreme simplicity, and even in an old-fashioned *lagar* with a long lever press and screw. * * * If the grapes show adhering sulphur, which sometimes happens when they have had a late dressing, they are first washed, which is done by dipping the wicker baskets in which they are brought from the vineyard in a tubful of water, and giving them a shaking in it for a short time, to allow the sulphur to escape through the wicker-work. They are then let stand to dry. As soon as they are dry they are put into the *lagar*, where a man spreads them equally out and treads them at the same time. As soon as the *lagar* was three parts full, the men enter and tread the grapes continually for eighteen hours, a little more or less, with necessary intervals, and stop only when the fermentation is at its height. As soon as the must marks less than five degrees of the glucometer, and the must exhibits the usual characters of good vinification, it is drawn off into vats, previously thoroughly cleansed. The pressings are then added, and so it is left with the bung out till its fermentation is complete, care being taken to keep the vats full, only covered with paper or muslin, to exclude dust and flies. In January, in clear fine weather, if it be already clear, it is wracked into clean, well-sulphured casks. In March, if the wine be still in the cellar, it is again wracked, but, during all this interval, the casks must be kept quite full and the bungs driven down tight, and, if corks be used, they should be wrapped in clean linen moistened with wine. If the wine remain longer in the cellar, it may be wracked again, if need be, about the end of June. At the wrackings in March and later, the spirit strength of the wine is taken both before and after the wracking, in order that any spirit it may have lost may be returned to it in good brandy, and this is the only spirit ever put into it, save in exceptional cases. Wine so made can be bottled the second year, and will keep and improve considerably in the bottles.”

This is by far the best, as it is the cheapest way of making wine of the Port character. The Viscount continues:

“With grapes whose must does not contain more than 25 per cent. of sugar, in my opinion, the attempt should never be made to produce brandied wines, according to the methods of the Douro. The proper thing is, under every point of view, to make genuine, pure wines for regular consumption, whether for home use or for export—wines more or less fine and delicate, but always good for nourishment—such as may be drunken in considerable quantity without prejudice to either health or reason. The true point lies in making them well and keeping them cleanly.

“Well were it to start now on this new way, which shall lead us to a better position in foreign markets—this radical reform of wine making. Without going into the particulars at present of this reform, I will state in a general way that it ought to have principally for a foundation—

“*First*—The adoption of a small number of varieties of grapes, only those which have been found best suited to the locality.

“*Second*—The change of the plan of wine making into another better suited adopting for example covered vats, the total or partial stripping, as the conditions of the vintage may require, and methodical treatment of the wines in the cellar.

“What I say about the ordinary wines of the highlands and river banks of Trazos Montes is applicable with even more force to the green wines of the Minho.”

Those “green” red wines are not unlike the red wines of Sonoma, Napa, and the valleys.

GEROPIGAS.

Here (in Bairrada) a great quantity of Geropiga and what is called “smothered wine” (*abafado*) are made, principally the former, which, in the hands of the knowing ones, is the quintessence of wines—the mysterious liquid concerning which the tastes of all markets agree, and which, when the wine is dead, can galvanize its body into life. Geropiga is made from the same kind of grapes as are used for wine making, and is of two kinds, red and white.

White Geropiga.—The white Geropiga is made from the must taken as it runs from the grape, and as soon as the pipe is about half full they pour in brandy to the extent, by measure, of a fifth part of the total capacity of the pipe, and then go on to fill it with must—to a pipe of 105 gallons, 21 gallons of brandy of nine degrees Tessa.

Red Geropiga.—To make red Geropiga the same method is followed as when red wine is to be made, only with the least possible fermentation. The vat must be filled right out. As soon as fermentation has set in, the must is kept stirred, in order to get as much coloring matter as possible in a short time and to prevent it from acquiring any roughness. As soon as ever bitterness shows itself the must is to be drawn off into casks and brandy added in the same proportion as in the case of white Geropiga.

SMOTHERED WINE.

Smothered wines are made in the same way exactly as the Geropigas, only that the must receives only one-fourth part of the brandy. The alcohol employed in these preparations is not of less strength than nine degrees of Tessa’s aerometer (I think about ten degrees *over* proof), and it is mostly pure brandy when the proprietor makes the Geropiga on his own account; but, except on such an occasion, the spirit used is from grain (“blue ruin”—low-class Scotch whisky, rectified). Some makers, when making Geropigas, give them as much as 32 gallons of spirit to the pipe. Over and above the methods just described I will mention the following, which are sometimes put in practice, although some of them have been abandoned at present, and but

few of them are in use. There was a time when elderberries were added to the red Geropiga, after it was put in the vat. Before making the mixture the elderberries were put in a bag and soaked in wine from day to day. As soon as it is well steeped it is trodden and squeezed, and the obtained liquid, rich in coloring matter and other substances, is added to the Geropiga as a seasoning. This treatment is repeated several times till no more coloring matter could be got out of the elderberries.

ARROBE.

Arrobé is still in pretty general use for strengthening musts. It is of two kinds, *simple* and *compound*. Simple arrobé is the best unfermented must, concentrated by heat to about the consistency of thin jelly. The proportions of this material used vary according to the destination of the wine, its quality and the demands of the market. In some cases two quarts are employed, and often more, if the wine have but little substance. Compound arrobé is made with sugar, quinces, apples, and other fruits boiled in wine, and this seasoning gives it an agreeable aroma.

[Translated from the Reports of the Royal Commissioner for the Kingdom of Portugal on Vineyards and processes of Wine Making.]

During the time the Royal Commission for "Foreign Industries and Forests in Victoria" was sitting, I obtained, through my college at Lisbon, as many as possible of the standard and most recent works on vineyards and wines. I have selected, as specimens of the services they have rendered, their reports on the wines and vineyards of those districts of Portugal which I think most likely to interest California vignerons at present, because some of their produce may be already known to them, either by having seen or heard of its character. Such are Bucellas, Carcavellos, and Colares. No allowance need be made for adverse criticisms, and but little for the occasional outbursts of praise of wine localities. Those only who have resided in, or at least slowly traveled through, the wine districts of the south of Portugal, away from city life, can form an idea of the quaint picturesqueness of the villages and quintas, of which a dozen or two at a time, with their restless small windmills and white cottages, half buried in evergreen trees, are in view from the top of every higher hill.

REMARKS ON THE WINE DISTRICT OF COLARES.

Colares and the surrounding neighborhood form a wine district, partly hilly, partly plains, which looks like a slice taken out of the province of the Minho put down in that of Estremadura, in a situation the most beautiful, whether we consider the soil or the climate.

If the vines of this locality were trained to trees, as is commonly the case in the province of Torres Vedras, without doubt Colares would produce the

“green” (*i. e.*, austere, rough) wine (*Vinho Verde*), such as is drunk in Braga or Basto.

Its high situation and proximity to the ocean render Colares as cold and damp as the Minho, and it is only by the greatest care in the cultivation that the grape in Colares attains to a degree of maturity superior to that which yields the green wine.

The result is that these wines are of a character intermediate between the ripe and the green wines, having the sweetness and graceful relish of the former, with the freshness, liveliness, and peculiar aroma of Tartar and Aldehyde.

But that which distinguishes the produce of Colares from all other wines of Portugal is, not alone the nice combination of the peculiarities of two great classes of wines, toned down and corrected one by the other; but to my mind the peculiar circumstance of their uniting the strength and body of heavy wine with the fineness, the delicacy, and the brilliant appearance of the most precious kinds.

Every one who for the first time drank Colares (not the common article, but good, legitimate Colares) will remember its occult virtue, which its outward appearance gave no evidence of.

It is a wine with the complexion of a woman, but with the metal and courage of a man. It is perhaps the only one of our wines of which we may say truly “*suaviter in modo, fortiter in re.*” In no other wine do appearances so completely deceive us.

Colares is a wine possessing all the requisites and qualities of the red growths of medoc. It is the most French wine that we have. Those who add brandy to this wine, to bring it up to the type of our other wines, commit an error in industry, and do violence to the elegance of good taste.

Brandy overpowers and obscures the delicate relish of this wine—it never amalgamates with it—robs it of the fine aroma of tartaric and lentyric ether, and leaves in their place the vinous, pungent, and alcoholic smell of ordinary coopered wines.

The red grapes grown about Colares are, for the most part, the following, viz: ramisco, parreira, mathias, castellao, gallego, dourado, molar, tintureiro. Among the white kinds are found the malvasia, castellao branco, arintho (probably reisling), etc.

The *ramisco* is the most commonly grown, and it appears to give this peculiar stamp and character to the wines of Colares.

The difficulty of getting the grapes to perfect ripeness has driven the vignerons of this district to adopt every known method of facilitating it.

The vineyards on the higher parts of the hills are protected from the damp winds of the sea by shelter formed of bushes and straw. Those that stretch from the top of the hills towards the east, and over the low lands towards Murcifal, suffer less from the severity of those winds; but the damp catches them quite as bad, notwithstanding their more favorable exposure, for the masses of aqueous vapor coming from the ocean become condensed on the high land, and fall in showers or mists on the eastern side and the valleys lying below.

They expose the grapes as much as possible to the sun, removing leaves from the vines; but the bunches are not customarily laid on dry floors, a practice which would be to my mind of the highest value for securing some additional aroma, in which it is deficient, the want of which alone prevents it ranking on equality with the very finest growths of Bordeaux.

The grapes are not stripped from the stalks, and this I consider another fault in the wine making, because the juice of the stalks, in this part extremely green and austere, must, one would think, diminish the best properties of the wine, and load it with crude matter, rendering the need of brandy indispensable for softening it.

Notwithstanding the vintage was over when I made my visit to Colares, I nevertheless found means of obtaining the principal kinds of grapes, for the purpose of estimating the saccharine strength of their musts. The following are the results obtained:

KIND OF GRAPE.	Saccharine Strength.	Absolute Alcohol in the Wine.
Ramisco.....	17	8.2
Molar.....	18	8.7
Malvasia.....	17.5	8.5
Castello tinto.....	18.4	8.9

Now I have found in some wines of Colares that I examined, after they had passed into commerce, as much as 12 per cent. of absolute alcohol. This wine had had 3 per cent. added. This is an excess in fortifying, for which the producer should not be blamed, but the wine merchant.

To render what I have said more clear, I may state that there are in Colares, as in other places, both good and poor wines, but all of the same stamp. The dealer buys both the bad and the good, and it almost always happens that he sells the bad, which he bought cheap, on the strength of having bought the good. When the blend has been made, the result is of course inferior to the good wine, so the brandy is called in, whether required or not, to cover, as far as possible, the insipidity produced.

In Colares no one buys a parcel of wine without also having to take a quantity of inferior quality. The dealer gives in to the terms, because he finds ready to his hand the means of making the whole into one uniform kind. But whoever desires to get a parcel wholly selected and reject the inferior will find the greatest difficulty in effecting a bargain, even at a very high price.

They told me that during the present year, when the price per pipe of 205 gallons ruled from £11 to £13, no one could obtain selected samples for less than from £17 to £19 sterling.

Notwithstanding that the wine was already in cask (toneis), I had a mind

to form my own notion of the condition of the wine cellars, and so visited several. They all seemed to be very inferior, with little accommodation. In one of them the wine press was turned out and placed under a shed.

Not a few of the vigneronns have no wine-press of their own, and have to borrow the use of those of their neighbors. From the town of Colares many go to Murcifal, a distance of a mile, to make their wine.

Their methods of making and treating their wines are in every particular the same as those in use at Torres Vedras, with the exception that the Colares men do not sweeten or use brandy in their wines.

“By order of His Majesty the King of Portugal, issued in an instrument bearing date 24th August, 1867, the royal commission appointed in 1866 for the purpose of studying the methods of wine-making in the various centres of viticulture throughout the kingdom, is directed—

1. To continue the same studies during the vintage of 1867.
2. That on this occasion they should give advice to persons employed about vineyards as to the best means of cultivating vineyards and making wine.
3. That they should point out the parts of the kingdom where and the time when conferences of vigneronns, exhibitions of wines, and special meetings of proprietors should be held, and prepare programmes to be carried out on such occasions.
4. Finally that they should study and propose to the Government the localities, and the requisite conditions for organizing provincial schools, or *vineyard and cellar schools*, for the advancement of the wine industry, by exemplification of sound processes of viticulture and wine-making, as well as to facilitate the education of cellar masters (*feitores vinicolas*).

“For fulfilling these important duties the entire kingdom was divided among the same three royal commissioners as the year before, and to each assigned the same portion.

“In rendering an account of the performance of these duties imposed on us by the renewed commission of 24th August, I shall follow the order in which they stand, as far as compatible with the nature of the object, and the brevity I am obliged to use in reporting this work.”

After detailing through seventeen pages of close print and very condensed language his inspection of the north of Portugal, and the perfections and imperfections he met with in the processes of cultivation and cellaring, Viscount Villa Maior comes to the direct means to be adopted in restoring to vigor, and developing the almost dormant capabilities of Portugal, as a great wine-yielding country.

No doubt this translation will fall under the eye of some who, like myself, have heard or read the Hon. Mr. Michie's famous lecture on “Victoria suffering a Recovery,” who will not fail to recognize in the tone of the Portuguese

Viscount something like that of the lecture of the present Agent-General of Victoria. A touch of comparative poverty had brought our people to their senses, and Mr. Mitchie seized the point at which a turn to better days and more sober thoughts had shown itself. Mr. Gladstone's tariff admitting the pure cheap wines of France at a very low duty soon told on the Portuguese market. As pure cheap wine became known to the British consumer, the dear, hot, rank brandied ports and sherries were thrown aside; and Portugal had to look about for markets.

Then came to pass what the late lamented Baron Forrester strove to teach the Oporto wine men, but to no purpose, viz: that sooner or later their fortified wines would ruin the country's name and trade. When they realized the devastations of the wine disease, and invasion of their favorite market, the Government set about doing at last what should have been begun fifty years ago, and kept advancing in industry with the advances made in chemistry and the physical sciences. How they are going to try to make up for lost time and opportunities will be found in the following translation, out of which, hints not a few may be taken at this day by our statesmen who regard our future progress.

The Viscount proceeds:

"The propagation of sound views upon all wine matter, the diffusion and popularizing of scientific principles of viticulture and œnology, and the stimulating of progress in these branches, are conditions essential and infallible of the increase of public wealth, and of the well-being and moral advancement of the people.

"Lectures by professional men carrying information to centres of production; exhibitions of the produce of districts displaying progresses made and exciting laudable desires of honorable distinction, rewarding in a worthy manner successful laborers, and pointing them out as examples worthy of imitation—these and such like are the very profitable means which Governments, zealous for the good administration of the public estate, have put in practice for the regeneration of agriculture. The wine industry can only hope for great benefits arising out of the employment of these means, and sound policy demands that they should be had recourse to in a country which derives from this source so large a portion of its public revenue.

"In the expression of the royal will conveyed in the commission of 24th August, 1867, recommending to the commissioners to point out the places where and the time when the free conferences and exhibitions, as well as general meetings of vignerons, should take place, the Government showed its intention of reducing to practice a thought so fruitful.

"I ought, I consider, as a member of the commission, to say frankly what I think in this regard, in order to do justice to so honorable a charge, keeping myself, however, simply, in this report, to what directly concerns the provinces of the north, in order not to prejudice the opinions of my colleagues. Already upon all these matters I have on two occasions represented briefly to the Government my own ideas; still, nevertheless, I ought to explain them again in this place.

“The means pointed out in the commission, 24th August, to promote the regeneration of viticulture in our country, lie in exhibitions, district clubs, or meetings, conferences and provincial schools of viticulture, or *vineyard and cellar schools*; still I venture even yet to propose, in order to render these means complete, the formation of (*comicios*) local bodies with power to make their own by-laws, and their embodiment in a general viticulture society (wine-growers' association), and meeting free and open to all wine-growers and traders in wine.

“The provincial schools, and the conferences, which in their very nature are free lectures, without scholastic formalities, constitute the means of teaching and the propagation of sound instruction. Exhibitions and public meetings of vigneron enter into the means for arousing public interest. The (*comicios*) district wine-growers' associations, and their mutual combination to form one general viticulture society, furnish another order of means—those of free discussion and the representation of all kinds of wine-growers' interests

“Professional instruction, discussion, and excitement, all converge to the same end, and being in harmony, they cannot but produce positive and rapid results, which efforts individual and isolated could hardly with difficulty effect, no matter how well they might be directed.

“The regeneration of the wine industry is of the greatest consequence to our country, not to say of urgent necessity. Every one knows that, in relation to our external commerce, the exportation of our wines is the most important and conspicuous; but when we consult our statistics and compare them with those of other wine countries, the truth is forced upon us that we are still far from being in a satisfactory state. I have before me, from an official source, a comparative statement of the totality of our wine produce, both on the continent and the islands, for the years 1853 and 1862. In it I see that our total produce in 1853 was 3,079,058 hectolitres. Out of this only 1,820,910 hectolitres were ripe wine, all the rest green. The produce of vineyards in 1862 was 776,311 hectolitres, of this there being only 654,061 hectolitres.

“Let us now see what in 1863 was the yield of only a single department of France, the Herault, which produces many wines analogous to ours: it was 6,718,329 hectolitres. It may be that our statistics are far from being completely reliable; still, after making whatever corrections we like, that which admits of no doubt is, that Portugal, essentially a wine country, does not produce one-half of what the Herault yields, only one department of France, whose dimensions are 6,198 square kilometres, with a population of 409,391 inhabitants.

“Nothing more is needed surely than this simple example to convince us how we have fallen behind, and how much we have to do in order to recover the place we ambition, and which we ought, as a wine country, to occupy, in order to do justice to our pretensions. Our regular export does not now reach to 300,000 hectolitres of wine, and if we do not export more it is because we do not produce sufficient of such character as will pass in foreign

markets. There is one general rule: he who produces little, always produces dear; and he who produces dear, always sells little and bad!

“Reverting now to the means stated above, I will say what I consider the readiest way of giving them practical effect.

“The provincial wine shows, the conferences on wine matters, and the meetings of the wine-growers’ associations (*congressos*) may, to my thinking, be all carried out at one time in each region, in some locality which may be selected as most convenient for the purpose. The wine shows should be once a year, and devoted principally to the exhibition of *new* wines. These wine shows, likely enough, might eventually create wine *fairs*, like the ancient Regua Fair, in order to give facilities for sale and purchase both to the vignerons and the wine traders.

“As to the details which must form part of the programmes, I will say nothing at present, as these should be the joint work of the commissioners.”

Regarding the third article of the royal commission, nothing further need be said at present than that they are an extension of the objects contemplated and partly realized by our vignerons’ clubs, and societies, and wine shows.

On the fourth article the commissioner proceeds, after detailing his views at considerable length, to summarize them as follows—the nature and requirements of *district schools of viticulture*, or *vineyard and cellar schools*:

“District vineyard schools, as I have already pointed out to the Government, ought to have—

1. A vineyard to serve as a model of good planting and cultivation, in which experiments could be conducted upon the different methods of planting and all that appertains to the management of vines.
2. A living collection of all known kinds of vines growing in the country, and of the best foreign ones also, not merely for the purpose of studying them and facilitating their classification and nomenclature, but also to experiment on, with a view to discovering the various degrees of fitness in the same kinds for producing wines of different characters.
3. Wine press and cellar, with all kinds of utensils and vessels for storing wine; to serve as models both for experiments and for showing the methods of wine making and the treatment of wines.
4. A model cooper’s shop, fitted with forge and all necessary appliances for repairing all kinds of vessels and tools used about the cellar or vineyard; not alone as a convenience, but also as means of instruction for the pupils.
5. A chemical laboratory suitable for analyses of soils, for testing *musts* and wines, and indeed for everything concerning œnology.
6. A still-house fitted up with suitable appliances for teaching and showing economic distillation in rural establishments.

7. Collections of rocks, chemical products, philosophical instruments requisite for illustrating physics and meteorology, and whatever may be necessary for the study of the allied sciences.

“The course of instruction, over and above the practice of all kinds of labor in the vineyard, the wine press, in the cellar, and in the cooperage, will comprise the elements of geology, botany, meteorology, chemistry, rural economy, viticulture, and œnology; each and all of these being carried only so far as is indispensable for a thorough knowledge of the wine industry.

“One director, one professor of sciences, one master vigneron (*mestre feitor*), a cooper, and a secretary, might be a sufficient staff to commence with.

“For instructing ten pupils, about twenty acres of available vineyard land would suffice; and the annual cost (in Portugal) about £1,250.

“The selection of pupils might be made by any extensive combination of vignerons; by private individuals, and lastly by the Government; but in no case until the pupil has passed a satisfactory examination in primary education.

“A complete course of education for a vineyard master (*feitor vinicola*) should be gone through in three years, provided always that the theoretical instruction was accompanied with the practical.

“The theoretical courses, and practical demonstrations, shall be open to all, that any one may turn them to his own account, and profit by the instruction imparted.

“I do not venture to say that the system I have proposed is perfect, nor even the best that henceforth might be reduced to practice. Still I am convinced that it can easily be worked, and one part made to fit into another, and that from its establishment will result a great impulse to viticulture—in the direction of its advancement and restoration; advancement and restoration which, beyond being an imperious necessity for Portugal, is more than all a duty.

“VISCOUNT DE VILLA MAIOR.

“Moncorvo, 4th February, 1868.”

• N. B.—I have given the *résumé* as closely as possible to the idiom of the original, so far as the numbered paragraphs go; and the remainder more freely, but imparting faithfully the author’s meaning.

JOHN I. BLEASDALE, D. D.

St. Patrick’s, 1st June, 1873.

REPORT OF THE PORTUGUESE ROYAL COMMISSIONER JOAO
IGNACIO FERREIRA LAPA, ON THE DISTRICT
OF BUCELLAS, 1868.

[Translated by Rev. J. I. BLEASDALE.]

In my report last year I sketched a short parallel between the method of cultivating the vine on the Tagus and on the Gironde, and from this parallel I endeavored to eliminate a truth, viz., that the Tagus has no need to envy the Gironde, neither on account of the extent and variety of the wine-producing districts scattered along its banks, each one devoted to a peculiar character of wine, nor on account of the diversity of bouquet and body found in this numerous variety of products, which, in my opinion, need only to be better known in order to be thoroughly appreciated. To render the parallel more complete, I would assert that in these districts we have one almost wholly devoted to white wines; a district in which are produced Barsac, Sauterne, Beaume, and even the Chateau d'Yquem, this famous *Yquem, roi des vins; Yquem, vin des rois!* This region, whose fame is far less than it ought to be, for we have yet to learn how fully to appreciate our own best produce; this region, which France would, if she could, carry off bodily and locate in the unoccupied space between Barsac and Sauterne, in order to round off and complete her district of the *noble white wines* of the Gironde, is BUCELLAS. Bucellas, hidden secluded, surrounded by high hills, and almost forgotten among its narrow valleys, is that rough diamond which no one gives himself the trouble to cut and polish and mount as it deserves to be.

Those who are acquainted with the Bucellas wine of commerce, or in its unripe state, or the coopered article, can form no idea of genuine old Bucellas, such as may be met with in the cellars of some few connoisseurs. Generally speaking, even the Portuguese have no true idea of Bucellas. It is necessary to go to the headquarters of this wine in order to know to what a height of refinement it can be brought, when it is kept in its native purity, and when it has been left to time, and to time *alone*, to develop its perfume, color, strength, and that peculiar sweet substance forming its delicate taste, and which floats over the palate like liquid velvet.

On the occasion of my traveling through Bucellas I was hospitably entertained in the house of my excellent friend Senhor Machado, a cavalier abounding in every estimable quality, who gave me the opportunity of tasting his private samples, few in number, but distinct in character, and selected with good judgment. When tasting these wines I was able to satisfy myself of many matters relating to the chemical life of wines in general, and in particular of the peculiar nature of the wines of Bucellas. You may meet with red and white wines of this kind without being able to distinguish which is which, either by their color, their aroma, or any property which affects the palate, after they are ten years of age. The reds become lighter and lose coloring matter, and the whites grow fuller in body and deeper in color.

It is worthy of observation that since these wines are made by a slow and very long-continued fermentation, they should run through their cycle of changes and become ripe in so short a period of time, seeing that others require fifteen, twenty, or thirty years to attain to it.

This slow fermentation has a singular effect on these wines, of which I shall have something to say by and by, which, however, concerns only the infancy of the wine.

The red wines deposit their coloring matter, as said already, and eventually become of a topaz-yellow. The whites assume a deeper color, owing to the oxidation of a portion of their tannin, which is not by them precipitated as by the reds. That it is to the slow oxidation of the tannin that the deepening of the color of white wine is due, we evidence from the circumstance that white wines fermented for a little while on the stalks and husks assume the *golden* or yellow color much more rapidly. No matter how pale and clear a white wine may be, if we add to it pure tannin only, in very minute quantity, we shall soon see it assume the golden tint, then the yellow, and after a few days a chestnut, or that of weak coffee. But supposing we consider it desirable to ferment the must on the stalks, or, what is much the same thing, add to the wine the last outcome of the wine press, or even if we throw in a moderate quantity of pure tannic acid, if we add a proportionately small quantity of sulphurous acid gas, dissolved in water, we shall find that the wine is not affected in color in the least. This proves that the cause of the wine acquiring a deeper color is the oxidation of the tannin (?), because, since this oxidation is prevented by the sulphurous acid gas, no discoloration takes place. And here is a bit of useful advice for those who like to ferment their white wines to some extent on the husks, yet do not wish them to have a color too deep when they attain maturity. Many practical wine makers consider the fermentation with a portion of the skins useful in protecting the wine against change.

There is one particular circumstance about the grape called "Arintho," in the Bucellas district, which, to my mind, explains the cause of the slow fermentation possessed by the wines of this locality, and gives them that gaseous quality which they all have while they are young. This particular matter to which I allude is that the *must* of this grape contains much of a substance, called sometimes "pectin," and more correctly "pectic acid." The must is usually so highly charged with this viscous, sticky matter, as to render it necessary, in taking the glucometric strength, to add an equal quantity by measure of water, and then of course multiply the result by two. I consider that this quality, which is met with, but in a lesser degree, in other white grapes or Bucellas, is due to the influence of a chalky soil, which indeed seems to be the general character of this district. It is well known that the most strongly effervescent wines are the produce of vines grown upon loamy soil. The genuine champagne comes from an almost pure chalk soil. The reason is found in the chemical action of lime on vegetation.

Loam, or fuller's earth, is a substance which favors in the highest degree the formation of substances of a cellular nature, among which, and perhaps as the first start of condensation, "pectin" ought to be considered—just in

the same way as magnesia tends to the formation of starchy matter, alkalies to the production of sugar, phosphorus and nitrogen the creation of albuminous substances, and iron the formation of color and aroma. Hence it comes that, in soil more than ordinarily charged with lime, there is a tendency in all the softer parts of shrubs to become wood, and in all their juices to turn to "pectin;" each one behaving according to its capability for condensation, in accordance with the predominating agent in the vegetation.

Now, whence comes it that this quality of the *must* of the "Arintho" grape retards fermentation, and leaves the wine more or less charged with gas? The reply is easy and natural. When the *must* contains much pectin (pectic acid), it is difficult to expose it thoroughly to the air, on account of its being more or less pasty, and prevents intimate contact between the nitrogenized matters and the sugar. The pectin, in fact, sets somewhat like a varnish interposed between the component parts of the must. Hence the slow and prolonged fermentation. The change and breaking up of the materials, instead of taking place almost at once, will go on slowly from particle to particle. The period of tumultuous fermentation lasts, in Bucellas, eight, fifteen, and thirty days, and occasionally longer, during all which time much sugar is being split up. Bucellas wine is one of long making, and, even at the end of three or four years, we may say it is yet to be made!

JOAO IGNACIO FERREIRA LAPA.

DISTRICT OF CARCAVELLOS.

"The wine district of Carcavellos is situated at the mouth of the river Tagus, and immediately behind the great fortress of St. Julian da Barra, the wines of which were in other times so celebrated as to be considered second only to those of the Douro and Madeira. Although this district comprises several parishes, and an extent of not less than six square miles, Carcavellos alone is the place where has been produced the most highly prized wine of that name, and along with it the so-called loins (*lumbos*) of Carcavellos, certain long strips of country of especial excellence. These 'loins' are certain gently sloping hills reaching down to the seacoast of Carcavellos. These lands are composed partly of marine deposit, and partly of rocks, with full exposure to the southwest. They are dry without being arid, conditions to which they owe probably their exceptional superiority over others not very distant from them.

"The soil formed out of the deposits which have covered more or less completely the secondary formation (a condition of the earth which appears to extend along the whole Atlantic coast from the mouth of the Tagus, as far as Aveiro), presents in Carcavellos a subsoil well mixed with clay (*agilla*), sand, and lime, resting on a subsoil at one time marly, at another on one composed of loam, clay, nodules of iron and quartz, called in the original 'cascalho,' and in places on a sort of fuller's earth, any one of them calculated to produce vineyards, and of course wines, each fine in its own special kind, pro-

vided the land has had all along suitable treatment, good manure above and efficient drainage below." * * * * *

Senhor J. F. Lapa then proceeds at considerable length to show that all the great wine districts of Europe are situated in positions not very different from Carcavellos, viz: on the banks of rivers; and though this particular one is partly open to the southwest Atlantic, it has the exceptional advantage of the prevalence of winds from the land during the growth and ripening of the fruit. He instances the rare old vineyard of Tokay, planted by order of the Emperor Probus in A. D. 280, on the mountain of that name, between Buda and Cracow, at the mouths of the rivers Theisse and Brodog. The gentle hills which surround Lake Averno, between Puzzuolo and Baia, produce at Falernian, "*generosum et lene*" so praised by Horace. The Johannisberg and the other grand wines of Germany are produced on the right and left banks of the Rhine and the Meuse. The cultivation of the vine in Medoc, reckoning from the head of the Graves, lies for the best part on the left bank of the Gironde, and is continued on the borders of the Dordogne and the Garonne. In Portugal the grand wines of Estremadura are grown on the borders of the Tagus; and those of Oporto on the steep hill-sides of the Douro. They have a saying on the Douro regarding the best position for vineyards, that "a vineyard should have its foot in the river and a stove at its foot" (*a vinha deve ter o pé no rio e um fogão ao pé*), and again, that the vineyard ought to be within hearing of the splash of the boat's oar ("*deve ouvir bater a espadella do barco*"). All this of course means that the vicinity of rivers and running streams is the most favorable position for vineyards; neither too high, lest the cold should interfere with the ripening of the grapes, nor too far from the banks that they may not be deprived of the advantage of the more equal temperature caused by the river.—[Condensed, J. I. B.]

The author continues: "Carcavellos at the present day (1868) is hardly a shadow of what it was. Oidium destroyed its prosperous vineyards. From 3,000 pipes it formerly yielded, it is now reduced to 12 pipes, and these are made by only two vignerons, the Srs. Paulo Jorge and Dias Pereira.

"There is nothing particular to note about the method of wine making in Carcavellos. The system here is the ordinary one, and perhaps the least faulty of the kind.

"The fermentation is long, but complete. All the natural sugar of the musts is broken up. In Paul Jorge's cellar I took the saccharine strength of his white wines, and found it to be twenty-seven days after commencing to ferment, in one 1.5 per cent., and in another 1 per cent. They were nearly dry.

"In a red wine, eighteen days made, I found 4 per cent. of sugar, but it would be dry in ten days more.

"Consequently the sweetness which we find in Carcavellos wines depends entirely on the boiled must (*arropé*) which is added afterwards.

"When this *arropé* is added, to prevent mishaps it is necessary to add

spirit, say 2 to 3 per cent., but which in fact never stops at that point; at any rate if we take into account the quantity already added to the arropè.

“The wines of Carcavellos, both red and white, on distillation yield generally 20 per cent. of absolute alcohol. Calculating that the mean saccharine strength of the musts is 28 per cent., which corresponds to 14 per cent. of alcohol, the total amount of spirit added will be not less than 6 per cent.

“Carcavellos wines, like those of Oporto and Madeira, improve much by keeping. They soon lose a portion of their coloring matter, and they acquire a perfume at the end of four or five years so fresh and grateful that they might be thought wines of greater age. We have few wines which so soon ripen.

“The arropè and the spirit are the two great matters to which the vineyard owner has recourse, or the two great sources of his prejudices about wine-making, according to the circumstances under which they are employed. They somewhat resemble those heroic remedies which either save the sick man's life, or hurl him into his grave.”

JOAO FERREIRA LAPA.

PRUNING VINES.

The following ten wood-cuts represent the principal methods of pruning vines in those districts of Portugal which most nearly resemble Central Cali-



Pruning—No. 1.



Pruning—No. 2.

fornia. From the seaboard at Lisbon, and Setubal to Cormbra, Colares, Torres Vedras, and round back by Palmella, the country and climate are not very different from a range of country embracing the whole of the valleys and hill slopes of Sonoma, Napa, the more elevated portions of the plain country about Stockton and Sacramento; the uplands of Stanislaus and Butte counties, and the genial climate of Mission San Jose. And as far as I



Pruning—No. 3.

have been able to discover, only one uniform system of pruning and cultivating prevails. I considered, when drawing this report, that vineyardists would probably find their account in pruning at least a portion of their vineyards to one or more of these methods. The natural habit of the vine must be considered. Pruned to long wands, some kinds will bear double the amount, and of higher quality, than if spur pruned; and the reverse is the case with other kinds. The "Mission" seems to bear spur pruning very well. The Zinfandel, on the other hand, naturally tends to long wand growth. As do the Hermitage, or Scyras, the Vedelho, Sweet-water, and many others—in fact, all which have a climbing habit, *e. g.*, Muscatel of Alexandria, one called "Feral," and many more.

A primary purpose which I had in view, was to select only such examples of pruning as would secure the principal advantages of long pruning, or medium pruning, without incurring the heavy expense of wire trellises, or expaliers, and at the same time afford sufficient varieties to select from.

Nos. 1 and 2, are in pretty general use in the district of Bucellas. No. 3,

common in the Alemejo. On vines pruned to this fashion, five or six eyes are left, the rest being cut out.

No. 4, is a method adopted with much success in renovating old and decrepit vines. The young shoot seen below is nursed till it grows strong, with only one pruned branch for fruit on the head of the stock. When the young one has become strong enough—in the second or third year—the decaying top is cut off just above it, in the pruning season; and protected by a bit of well wrought tenacious clay, or other material capable of excluding water. It thenceforth becomes the fruit-bearing vine.

No. 5, is the plan usual in Carcavellos, near the seashore, a few miles from Lisbon, famous for the wine of that name.

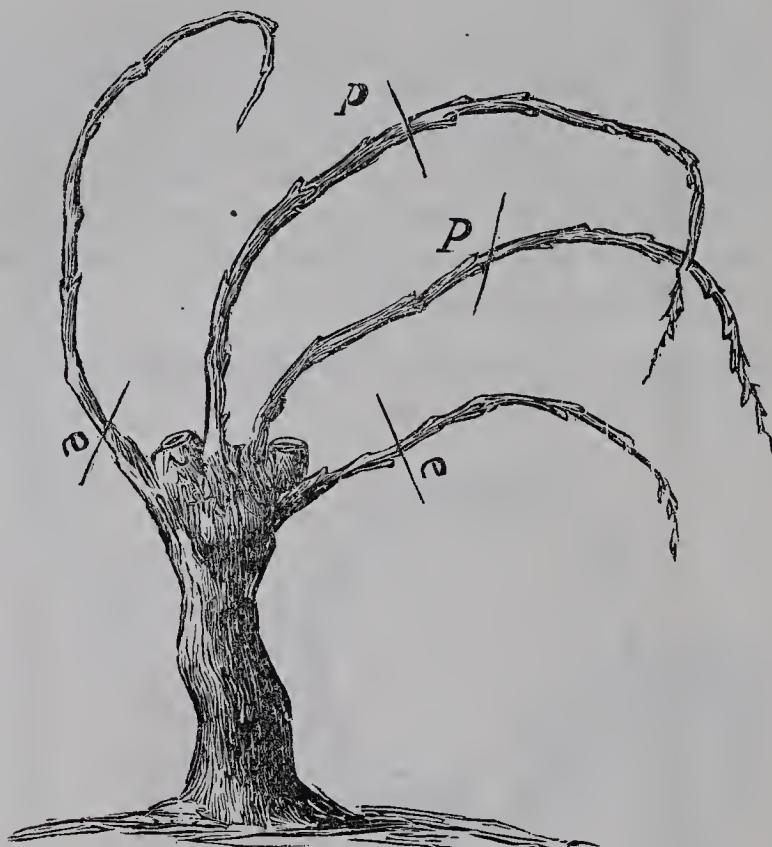


Pruning—No. 5.

No. 6 is used in the southern portion of the Alemtejo, more especially in the old vineyards, where the soil is somewhat moist and rich. The cross lines at *p p* show the points of pruning for next season's fruit; those marked *c c* the *esperas* to grow wood for the year following. The formation of much of this part of Portugal is granite and schistose rock, with but little lime and iron. Here the musts are of low sugar strength. Still the district supplies itself with all that is needed for home consumption, and in good years, a quantity for exportation.

Nos. 7, 8, 9, 10, are in general use in the central portion of the Kingdom of Portugal, from Lisbon, on either side of the Tagus, over an area of 400 square miles, where the variety of vines grown appears to need this kind. Though the shape in which the fruit-bearing branch is bent or twisted differs in appearance, yet its length, number of eyes, and the position of the spur which is intended to grow the next year's wood, are all the same. Moreover, though those looped in the round seem to be vertical, they are found to be placed very often, as about Lisbon, horizontally. They shade the fruit, while

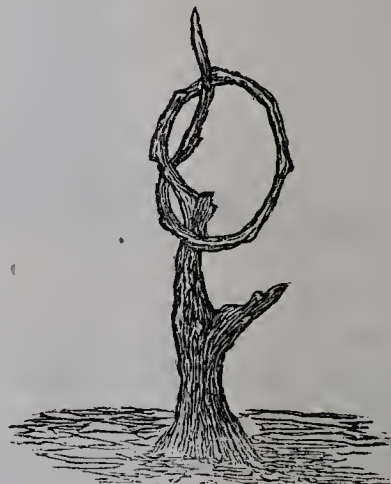
it ripens with the sun's heat, radiated from the smooth surface beneath and around them.



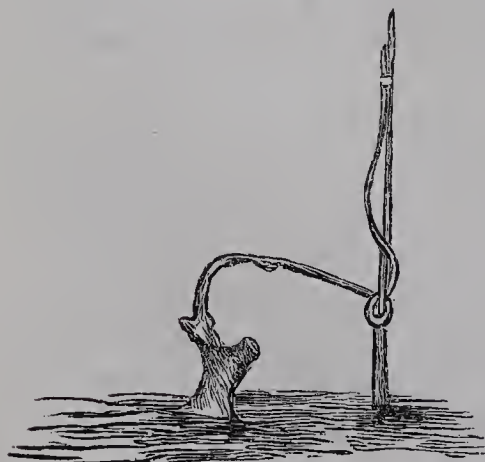
Pruning—No. 6.



Pruning—No. 7.



Pruning—No. 8.



Pruning—No. 9.



Pruning—No. 10.

VINE PROPS.

The material used for the prop is either chestnut, or some other smooth stakes, or very commonly only cane, a common variety of which, such as form cane-brakes in swamps, the vineyardists cultivate in great beds in the dampest part of the vineyard. The smoothness of their skins, when deprived of the leaves, is favorable to the vine shoots, while the whole of the middle and butt end are strong enough for the support of young vines, and will last for two or three seasons. This kind of cane is very useful and looks well when forming the light crosspieces on trellises.

LOW HEDGES IN VINEYARDS.

Where the vineyards are subjected to blasts of wind, whether as in parts of Portugal, *cold*, or in much of southern Australia, very *hot*, recourse is had to planting some kind of shrub, of moderately low habit, small roots, and fragrant flowers, that do not quickly perish. Such low fences as I refer to are mostly either rosemary, lavender, hyssop, or other aromatic shrubs. The primary purpose is to break or prevent the currents of air; and to this end they are seldom much more than two feet high. They turn to account, however, in other ways also, viz.: The flowers of lavender and rosemary have a ready sale in the market, either for distillation or to place among clothes to keep out moths and impart an agreeable odor, and the same may be said of hyssop in a less degree. They also assist to protect the vines from many insects, by attracting them during the time when the vines are in flower.

USES OF A FEW FRUIT TREES IN VINEYARDS.

Besides the direct profit arising from the fruit, it is considered most necessary to plant here and there a few pear, fig, prune, quince, plum, apricot and peach trees, because their fruit ripens before, and at the same time as the grapes, and serves to attract the soft-billed birds, which, though at the time of spring and early summer almost invaluable for destroying insects and caterpillars, are very destructive of grapes, if there be not handy a good supply of sweet fruit, such as figs, which they seem to prefer to all other kinds of green fruit.

WANT OF UNIFORMITY IN RETAIL SUPPLY.

There is an almost universal complaint among consumers and purchasers of small parcels of wine, that they cannot depend upon obtaining uniformity in kind and quality from year to year. In the instance of consumers, when a taste and relish for some particular kind has been acquired, and they seek to replenish their cellars, they are disappointed, and often disgusted, at finding themselves quite unable to obtain what they have become accustomed to. And this state of things must continue as long as the present condition of the wine industry remains as it is. Some approach to uniformity in price is

another desideratum, the present ruling retail prices being nearly always too high. One real drawback to prosperity of native wine lies here.

In Victoria, and as far as I have been able to learn, in the adjacent colonies also, every owner of a vineyard is his own wine-maker, treater, cellarer, and often merchant also. The produce of his vineyard begins, progresses, and ends under his own direction; and the end is not always satisfactory. As a matter of course he must lose for very many years a large amount of money that ought to be found in his profit account, on account of having to go on increasing his cellarage, as his stock accumulates from year to year; and needing to employ more hands upon it, and those not unfrequently worse than useless in cellar work, such as sulphuring, racking, fining and bottling. Then comes the selling, when customers have been found, "by dribs and drabs"—six or ten dozen to one, and as much or less to another, and occasionally a hogshead—at a comparatively high price, it is true; but when all kinds of expenses are taken into account, a very narrow margin of profit remains to the producer.

It is in reality just as absurd of the Victorian—I might say of the average vineyard proprietor, to become his own wine treater, in the present knowledge of that delicate art; as it would be for a squatter to become a butcher and a woolen manufacturer, or spend his time and money on utilizing hoofs and horns, and conducting chemical experiments on the after products of dead cattle, instead of minding breeding, rearing, and feeding. Who would not split with laughter, or cry with pity at the insanity of the wheat growers turning their own millers, bakers, and bread sellers, and waiting to dispose of their grain in that way? One may say the present, and hitherto the past, state of wine-making was one of necessity either in this fashion or not at all. There are little niceties about it known only to the experienced. In the case of wine the analogy seems to be absolutely perfect; and so long as our wine growers continue to do as hitherto they have done, the analogy will continue, and we shall here and there wonder at a grand result obtained from a particular vintage, or even vineyard, as a "happy accident." The existing drawback on our pure native wines lies chiefly in this: The producer has enormous expense in cellar construction, and cellarage; is kept in anxiety about the way in which his 20,000 gallons will turn out, or how much of it may easily go bad; to say nothing of the want of confidence on the part of the banks in advancing on hypothecated wine.

REMEDY.

The remedy here, as elsewhere, is a few large, wealthy, buying companies, with plenty of cash, and all requisite appliances for dealing with young wines and musts, as they are dealt with and treated in Southern Europe. There the must, when pressed out and fermented, can be sold at a fair price, just as among us a load of wheat or oats can be sold. If the agent of the firm and company does not call at his vineyard, all the proprietor has to do is to cart his hogheads to the (*Fietoria* we may call it) the company's establishment, where it will at once be tested, and a note given him of its quantity and char-

acter, that will be honored with cash at once by the pay clerk. In other words, wine in Southern Europe stands on the same, if not a better, level than wheat, oats, &c., here. And why should vigneronns be deprived any longer of the obvious mercantile advantages?

EARTHY TASTE OF WINES.

In some few of the wines submitted to the jury, as well as in the produce of very many vineyards of Victoria, and of a few in South Australia and New South Wales, a peculiar taste is met with which has somehow or other become generally called *earthy*. Why this designation should have been applied to it I do not know. Of course, it is not a matter for wonder to find the English language deficient in technical terms expressive of shades of difference among the characteristics of pure wines. This term "earthy" seems to have been obtained by translating a French word or two into English, "*gout de terroir*." But who knows what clear idea can be conveyed by a word such as "earthy," that must vary with every kind of earth?

But the underlying taste of many of our wines, far more commonly of our red wines, is almost always of the same character.

In endeavoring to discover the cause of this peculiar flavor, I have spent many years, and have studied hundreds of samples, and sought the advice of both wine-treaters and scientific chemists, and induced some of them to institute independent investigations for themselves, but hitherto without any reliable results. I could get nothing to lead me to the original cause of it by direct investigation. Regarded from a chemical point of view I feel inclined to think it is due far more to the way in which the fermentation is carried on than to any effect of soil. This is, of course, only conjecture. But now that we have a Department of Agriculture, with an agricultural chemist, he might, with advantage, take the subject in hand. Could he make out the substance, its cause, and prevention or remedy, he would confer a lasting benefit on that branch of agriculture, and add largely to his public reputation.

BAD CORKS AND DECAYING STAVES.

Among minor matters deserving attention were the corks used by most of the exhibitors. I know of nothing more easily tainted by being brought into contact with unclean materials than wine, if we except milk. A few samples having good corks had been kept in casks having a decayed stave, the taste and smell were unmistakable. And this leads me to remark that the Portuguese practice is the safest and best in this respect. It is to leave the store vessels to become coated all over, often to a great thickness, with the natural deposit of bi-tartrate of potassa; and so far from this tartar being injurious to the wine it is often the saving of it. Wine exposed for only a short time to a piece of decaying wood will acquire a taint that nothing can remove afterwards.

BOTTLE STINK.

Some white wines, notably Verdeilho and blends of it, are hardly ever quite free from what we call bottle stink, an odor disagreeable to most people. This, however, can easily be removed, or very much reduced, by simply rolling the cask into the yard when the sun is warm, and placing it in the sunshine, and removing the bung for five or six hours, then driving it home and rolling the cask about for a minute, allowing it to remain till next day, and repeating this treatment every day for four or five days, when it is all but absolutely certain the peculiar offensive smell will have disappeared. Drinkers of Madeira (a Verdeilho) for the most part draw the cork and place the bottle near the fire for a minute or two, really only to remove any remnant of this odor.

MIXING OF GRAPES IN THE PRESS.

Mr. I. C. Woods, of Mission San José, as will be found at page 53, writes as follows: "The attention of your Committee on Wines is respectfully requested to the following practices among our manufacturers of wine: 1st, mixing Mission grapes with a small percentage of foreign grapes, and naming the product after the foreign variety; 2d, mixing several kinds of foreign grapes, and giving the same the name of the most prominent. If this method of manufacture should fail to meet with the approval of your committee, it would, I think, materially assist in improving the quality of our wines."

1st. Now with respect to mixing grapes, that is to a greater or lesser extent practiced in nearly all wine countries, if we except a few vineyards in renowned wine districts of France, and on the Rhine, where hardly any kind but Riesling is grown. The objection cannot be sustained as against mixing two or more sorts. But it is a form of fraud to sell under the name of the most favorite or renowned name, a wine that is not wholly or almost wholly the produce of the variety named. But there is no fraud in selling a wine, no matter how made, or blended, under the name of the vineyard, or district, or town near where it is made. Neither is there any attempt to deceive in calling a red wine, or better still, a blend resulting in red by the name of claret, so long as it is not styled *French* claret. Nearly all the sherries are blends—so one may call a wine of his own making "sherry" if he likes, but not Spanish sherry.

2d. "Mixing several kinds of foreign grapes, and giving the same the name of the most prominent." If it be wrong to sell a thing for what it substantially is not, then such conduct would fall under the title of fraud; but not so if the wine had any local name, or any name sufficiently indicative of its being a mixture or a blend; or an artificial preparation known to be such—for example, "California Port, or Angelica."

THE BLENDING OF WINE.

There is no operation in the wine-press or the cellar demanding so much study, care, and attention as blending, nor any upon which so much depends.

For, whereas a given kind of grape may yield an unusually fine wine one year or two, it can never be depended on for a uniform supply. The universal complaint among ourselves is that by the time a gentleman has acquired a taste and relish for a particular growth he is unable to obtain the equal of it again. Now, when the Spanish or Portuguese *feitor* hits on a blend that suits a market, he can continue to supply it as long as there is a demand. Duff, Gordon and Co.'s Golden Sherry, for example, whenever met with since it was first produced, and of equal age, is recognized in a moment. So with the Ports, and the wines known as Lisbon Sweet and Lisbon Dry. But all these are the result of judicious blending; and here be it said that blended wine is pure wine, so long as nothing else is added to it.

It will be probably matter of surprise to readers, who have never seen any of the great cellars of Southern Europe, to be told that next after the proprietor himself the most important personage is he who superintends the blending. The art of blending cannot be taught to one man in ten thousand. It requires a sense, or rather several senses, each perfect in a high degree—an eye for the exact shade of color required—an acute sense of smell for bouquet—and lastly, a detective palate. But it requires yet more, and I hardly know how to describe it, unless I may call it an instinctive apprehension of the result of a blend of two, three, or half a dozen kinds even before mixing them together. There are men without an ear for music, to whom music is the “least disagreeable of sounds;” some men are color-blind, and we not unfrequently meet individuals who have no sense of smell. None of these classes could ever learn wine-blending any more than he who had no ear for music and no conception of harmony could ever become a great singer or composer. It is the same with the subject I am treating of.

PRIVATE BOTTLE CELLARS AND WINE BOOKS.

When remarking on the need and value of blending wines, something should have been said about “private bottle cellars,” and “cellar books,” for recording every minute circumstance of season, cultivation, kind of grapes, age of musts or wines, times of wracking, quality of materials used in fining, etc., of each kind used in making a blend. In every cellar where wine is kept for maturing and especially for blending, there should be a proportionately small private cellar or bottle room, in which a dozen or so of every kind grown each year should be stored carefully, and on each bottle, whether a blend or not, a note or number referring to the cellar book where its entire history can be at once traced. Thus and thus only can the great wine houses of Spain and Portugal continue to supply uniform wines as long as ever there is a demand for a particular brand. As yet I have heard of only one such private cellar and one set of cellar books in California. In wine blending “the rule of thumb is no rule.”

FINING WINE.

More good wine has been spoiled by what in English we call fining than probably by any or all other operations in the wine cellar put together. The

word has unfortunately two widely different meanings: 1—When a wine is harsh, rough in the mouth, and we wish to *soften* it, we put in finings, which from advice or experience would seem most likely to produce the desired effect, and then albumen of eggs (the whites) is had recourse to. Even in the case of *rough* red wines very great care is needed. The roughness is often due as much to the undeposited tartar as to an excess of tannin. Where there is no great excess of tannin, any but the smallest quantity of any albuminous substance will take the life out of the wine. But in the instance of white wines the danger is infinitely greater. Almost always the harshness of young wines is due to the tartar, which will of itself deposit in time, and let the wine become *fine*, without “finings.” 2—The word *fining* is used when the wine is dull and deficient in brightness—as it is said, “it *won't* become candle bright.” Now, in such cases, recourse is had to isinglass, or gelatine, as the rule. And when not used in the smallest quantity and with the greatest care, a delicate wine is rendered soft and mawkish, and if not at once bottled will turn sick and flat. The life of the wine lies in its tannin. It is to it like blood to the animal. To go into the details of fining wine would be out of place in this report. Such and many other chemical details affecting the life and well-being of wines are the proper functions of the Professor of Agricultural Chemistry in the State University, and the sooner the conditions of these important details are handled in that department of the University, the sooner will rational methods of wine treating be adopted. At pages 83-4 will be found a full account of what is required to educate a viculturist and cellar-master, and there is not one item too much in it. But even though the present generation of wine-treaters and cellar-masters in California cannot be put through a regular course of technological instruction, still, by a well illustrated course of lectures, the practical knowledge they already possess may be greatly increased, and practices which they now blindly follow because more or less successful, be rendered intelligible. In no one department of wine managing have I met with so many faults, both in Australia and in California, as in *blending* and *fining*. Nearly if not quite all the white wines that fell out of the first-class on this occasion owed it to injudicious fining. The tannin had been removed by isinglass, and thus the after-taste of the liquid was slightly mawkish. From the nature of the soils and the methods of fermenting now in vogue, I do not believe that any naturally white wine has more tannin than enough; consequently there is no place for fining with isinglass or albuminous matters, as at present used. It should be prepared differently.

On an occasion of sampling wines, some years ago, in company with a first-rate judge, I shall never forget his disgust on meeting with a really grand wine which had been spoiled by fining. “Just look!” he remarked, “the good thing which the Almighty put into that wine the devils of cellarmen have taken out.”

DISTILLED TO ASCERTAIN THE SPIRIT STRENGTH, NOV., 1878, BY J. I. BLEASDALE.

NAME OF GROWER OR IMPORTER.	NAME OF WINE.	SPIRIT STRENGTH BY BALANCE.	BY WEIGHT.	BY VOLUME.	BRITISH PROOF.	AVER- AGES.	TANNIC ACID.	COLOR.
Hooper.....	Mission White.....	.98246	10.8	12.1	23.6	.....	.....	White.
Hooper.....	Tokay.....	.981020	11.3	13	25.8	.....	.....	Golden.
Lachman's.....	Tokay.....	.98576	9.1	10.8	19.6	.....	.....	Golden.
Kohler's.....	Sherry.....	.977820	15	18	31	.....	.....	Golden.
Sent by Mr. Moore.....	French Claret.....	.98739	8	9	16.3	16.125	Enough.....	Purple.
Sent by Mr. Moore.....	French Claret.....	.98660	8.5	9.3	17		Enough.....	Purple.
Sent by Mr. Moore.....	French Claret.....	.98768	8	8.9	16.2		Enough.....	Purple.
Sent by Mr. Moore.....	French Claret.....	.988431	.....	7.5	15		.....	Purple.
Gundlach.....	Gutedel.....	.98169	10.8	13	24.8	.....	Barely enough.	Yellow.
Gundlach, 1873.....	Gutedel.....	.98242	11	12.6	23.7	.....	Barely enough....	Yellow.
Gundlach.....	Zinfandel.....	.98384	.....	10.9	21.8	21.8	Plenty.....	Purple.
Gundlach.....	Zinfandel.....	.98391	.....	10.7	21.4		Plenty.....	Purple.
Gundlach.....	Riesling.....	.98082	12.1	14.1	26	.....	Enough.....	White.
Kohler & Frohling.....	Zinfandel.....	.98160	.....	11.92	24.7	24.7	Plenty.....	Purple.
Kohler & Frohling.....	Zinfandel.....	.982040	.....	11.915	24.7		Plenty.....	Purple.
Kohler & Frohling.....	Riesling.....	.98280	.....	11	23	.....	Plenty.....	.....
Kohler & Frohling.....	Port.....	.97875	.....	14.5	30.02	.....	Enough.....	Red.
Kohler & Frohling.....	White.....	.98262	.....	.....	23.01	.....	Enough.....	White.
Kohler & Frohling.....	Angelica.....	.97798	.....	16	31.4	.....	.....	.....
Keene.....	Malvoisie.....	.98120	.....	12.75	25.3	.....	Enough.....	Purple.
Keene.....	Malvoisie.....	.98200	.....	12.1	24.2	.....	.....	.....

THE FOLLOWING HAVE BEEN DISTILLED AS STANDARDS FOR COMPARISON OF WHITE WINES:

NAME OF GROWER OR IMPORTER.	NAME OF WINE.	SPIRIT STRENGTH BY BALANCE.	BY WEIGHT.	BY VOLUME.	BRITISH PROOF.	AVER- AGES.	TANNIC ACID.	COLOR.
Purchased at Maison Doré.....	Chateau Yquem.....	.98271	11	12.4	23.3	.....	Plenty.....	Yellow.
Charles Meinecke & Co.....	Geisenheimer.....	.98410	.....	.....	20.9	.....	Plenty.....	Pale yellow.
Charles Meinecke & Co.....	Macrobrenner.....	.98518	.....	.....	19.6	.....	Plenty.....	Pale yellow.
Pabstmann, of Mainz.....	Hockheim.....	.98246	11.5	13	23.52	.....	Plenty.....	Pale yellow.
Pabstmann, of Mainz.....	Johannisberger.....	.98362	10.6	12.5	22	.....	Plenty.....	Pale yellow.
Pabstmann, of Mainz.....	Fine Hock, Queen Victoria.	.98394	10.3	12.01	21.3	.....	Not so much.....	Pale yellow.

It will be seen at a glance that pure California wines stand higher in the spirit scale than the Chateau Yquem, and the best of the Rhine Wines. The foreign give an average of 21.77 per cent., the California 23.34 per cent., British proof.

At page 51, in the circular letter to vignerons, there occur these lines: "Dr. Bleasdale had consented to take part in the present exposition, and also to favor the Managers with a report on the samples submitted. The Managers consider that such an independent report would benefit the wine industry in this country and abroad." All that portion of this report which has any reference to the classification of the fifty-four samples submitted, or to any critical remarks bearing upon them, is the joint expression of the very able wine judges, who, together with myself as their secretary and reporter, examined them in detail. That the number was so small is matter for regret, the more so as this report will be read in other countries, remote from San Francisco. Still, considering their varieties, the distances asunder of the districts from where they were grown, and also that they were the produce of extensive vineyards, and had received the most careful attention at the hands of the growers and treaters, they may be accepted as a fair display of the present known capabilities of California as a wine-producing State. A glance at the tabulated forms of classification will show more convincingly than words their high standing in the opinions of the wine judges. Of course, they were not judged with reference to European standards, but as to their own inherent goodness—either for home consumption or export. It is to be hoped that the methods of wine-making and maturing which I have picked out of the reports of the Royal Commissioners for wines and vineyards of Portugal will be found useful by those for whose benefit they have been translated.

CONCLUSION.

And now, in concluding, I would invite the reader's attention for a moment to a few considerations which have weighed with me and influenced me in doing what fairly lay in my power to advance and improve the wine industry in the country of my adoption—Australia—because I think it is due to myself, as well as to those who may know that I am a clergyman but will know little or nothing more about me, to state that I neither have nor ever had any mercenary or pecuniary interest whatsoever in vineyards or wines. From boyhood to manhood my youth was spent in Portugal, where, partly by the accident of circumstance and partly by early habit of observation and intercourse with wine men, I mastered the details of Portuguese cultivation and cellar-ing. Having acquired a love of chemistry in my college curriculum, as a man I selected that science for a recreative and an aside-pursuit for the leisure of my life. During my residence in England neither any knowledge that I had acquired of chemistry nor of wine matters was of any practical avail; but, once landed in Australia, all that I knew and all I could acquire, was in present demand. Climates and soils of wide range and variety were there suited to every variety of vines cultivated in Europe, from the cooler portions of the Rhine vineyards to the hottest and driest of Spain and Portugal. At that time and for six or seven years afterwards, the wine-growers of Victoria were only a small number of Swiss, and one or two from north France. These had prospected the capabilities of the country, and nothing more.

The wine they produced was not prepossessing; their methods were those of their native land—ill-suited to a climate seventeen degrees nearer the equator. When, however, wealthy men turned their attention to planting vineyards, the demand for southern European ways of planting, cultivating, and wine-making became active, and it was deemed an act of patriotism in those who had knowledge and experience to throw it into a common fund, available to all for what it was worth. At that time and for some years afterwards my principal duties were those of Professor of Natural (demonstrative) Science in St. Patrick's College and lecturer to the masters and the advanced classes of one great section of the Government schools; and, of course, had laboratory and appliances at hand for prosecuting original investigation. Of course, also, there was a charm and freshness about the study of a European industry just being introduced upon a virgin soil, with the prospect of discovering things new or different in their conditions from the Old World. But I had far higher motives still, and more befitting my calling in life. Drunkenness of the lowest and most degrading character was met with everywhere. Scenes of debauchery were to be witnessed such as could hardly be believed at the present day. This was previous to the discovery of the precious metals, and chiefly during the seasons when station produce arrived in the city, but more or less at all times. Then for the ten years following the discovery of gold, hard drinking was apparently the one source of pleasure for most men—and women, too. Delirium tremens, common in both sexes; insanity and crimes of violence, resulting from drink, crowded the columns of the daily press with their record, and the lunatic asylum and the jails with the unfortunate victims of unbridled passions and poisonous spirituous drinks. Then was practiced what is known in Australia as *hocussing*—drugging men with a certain preparation to stupefy them previous to robbing—the effects of which, if it did not actually kill, not unfrequently left them imbecile for life. I have known many such cases. Again, when studying disease in the hospital and the dead-house, the ravages of spirit drinking were hardly ever absent. Forms of disease unknown in wine countries—consolidation, fatty degeneration and enormous enlargement of the liver, fatty degeneration of the heart, and softening of the brain—were very common. For more than eight years, I was associated with the late Dr. John Macadam, Government analytical chemist, and with him investigated many forms of diseased structures, either wholly new to science or but rarely met with, hardly any one of which but could be traced to the habit of dram drinking. And in this place I would remark that any or all of the above disastrous effects are produceable and produced here as much if not more surely by dram drinking, not followed by intoxication as by debauchery. Where the spirit used contains fusil oil in an appreciable quantity and is persistently taken in small quantities, the whole system is soon brought into an *alcoholic condition*. It would seem as if the effect of badly rectified spirits stole steadily on the system till weaker constitutions succumbed in death, and the stronger in the mad-house.

Now, in all hot countries thirst is a natural and often distressing condition of life. In summer the heat relaxes the system and depresses energy, and so for the double purpose stimulants of some kind are had recourse to.

During my long residence in and near Lisbon, I witnessed a state of things most appalling. Society had become utterly disorganized at the close of the civil war. The worst passions inherent in the Latin race broke out of all bounds, and defied restraint; but during all this sad time—and indeed during my residence in that large city—I never once, by night or by day, saw a Portuguese drunk; yet wine of good quality was not more than five cents a bottle, and pure wine brandy about twenty cents per bottle. In fact, the spectacle of an English or Dutch sailor rolling drunk along the street, or tumbling in the gutter, would attract the people of a whole district.

Wherever wine is in habitual use by a people there is no such thing as drunkenness, and its long chain of evils. I thought and am still more convinced that to be healthy and enjoy life in subtropical regions like this, wine must be substituted for beer and spirits. I love cheerfulness, and honor the saying of Holy Writ, "*Vinum lætificat cor hominis*," and those others from Ecclesiasticus, "Wine was created from the beginning to make men joyful, and not to make them drunk. Wine drunken with moderation is the joy of the soul and the heart."

JOHN I. BLEASDALE, D. D.,
Of Melbourne, Victoria, Australia.

PROFESSOR HILGARD ON PHYLLOXERA.

MEETING OF THE VINICULTURISTS OF SONOMA.

About a hundred of the viniculturists of Sonoma valley, met at Poppe's hall, Sonoma, recently, to listen to addresses on subjects pertaining to the interest and welfare of the leading product of the valley. Among those present were Hon. Wm. McPherson Hill, Col. Geo. F. Hooper, L. Gosse, Dr. Leavenworth, Gen. M. G. Vallejo, A. T. Haraszthy, L. Jacobi, Geo. E. Wattriss, J. A. Poppe, Julius Dressel and J. B. Morris.

The meeting was called to order by Senator Hill, who nominated Col. Hooper as Chairman, the question being put, he was elected unanimously. James B. Morris was elected Secretary.

Col. Hooper on taking the Chair stated that all were familiar with the object of the meeting, so he would introduce Prof. Hilgard of the State University.

Prof. Hilgard stated that he was pleased to meet the people of Sonoma, but he was prepared with no set speech; that they had come together to have a little neighborly talk upon subjects interesting to them all; that it was time that wine growers should take steps for self-preservation; as was evidenced by the melancholy piles of costly fire-wood seen about the wineries, and even in the public square. As Professor of Agriculture at the State University, he was anxious to bring the aid of science to the agricultural

arts; and the same was true, of every other department of the University, each in its sphere. So long as farmers were backward in sending their sons for instruction, he thought it incumbent upon the institution to prove to them by other work the advantages to be derived from a knowledge of principles and their practical application; for science is only the best results of past experience, systematized. Of such results as he had already been able to accomplish, he would only mention that of the examination of the alkali soils of the State, which had led at once to an easy and cheap mode of reclaiming a large portion of them, and the recognition of the exuberant supply of plant food they contained. But he has here as elsewhere found great difficulty in getting the cultivators of the soil to aid him in his researches, partly from a want of the habit of close observation so as to frequently omit to notice the very points most especially to be looked after; partly also, from a misapprehension of the intention, objects and possible results of such investigations. When in a position similar to his present one, in the Southern States, where cotton-growing was the paramount interest, the planter would say to him: "I raise one bale of cotton to the acre; can you, by the aid of science, raise two? If so, I am ready to listen to you. But the speaker said I may not be able to raise, even by the aid of science, two bales where you now raise one; but I can tell you how you can most cheaply continue to raise one bale always, instead of turning out your land to waste." They did listen when the shoe began to pinch, and a quarter of a bale was all they could get out of the impoverished soil; and they are now reaping the fruits of the work of science. And from what I see in your valley of the difference between the products of the vineyards now and when I was here three years ago, I think that the shoe is beginning to pinch here. Three years ago I found traces of phylloxera in numerous localities, and sounded the alarm; sounded too loud, perhaps, for I am pleased to learn that its ravages are not as extensive as I expected they would be; not extending as rapidly as in France; and as it does not spread so rapidly, I think something can be done to stop its devastations.

That something needs to be done if Sonoma is to continue to be a vine-growing district, is by this time, I presume, apparent to all; it will not do to imitate the ostrich by closing our eyes to the facts of the case.

The way I account for the comparatively slow, though none the less sure progress of the pest in your valley, is that one of its many forms, that which has wings to carry it rapidly through long distance, is here produced, either not at all, or but very sparingly. That is my supposition; it is for you to aid me in verifying the theory, and this you can readily do by hanging out among the infested vines, in June, July and August, pieces of rag smeared with molasses, tar, or any other sticky substance, on which specimens of all the winged creatures in your vineyard will be caught. This is a question of primary importance in the premises; but in order that you may appreciate its bearing, I must tell you something of the life-history of this interesting little insect.

The phylloxera is an American insect—a present from America to Europe, and appears in two forms; the first forms galls on leaves, and is met with in all parts of the country on the leaves of wild vines; the second seeks the roots and is the only dangerous one. Both kinds are of a waxen yellow tint, but otherwise look like the common plant louse or aphid, only they are very much smaller, hardly the size of a very small pin head. As ordinarily found sucking the rootlets of vines, the insect is wingless, and all are females, or at least, egg-layers; for there are no males for three or four generations, during which each of the insects may lay from 200 to 400 eggs apiece, which hatch in about 10 days. So you can easily understand why and how the vine-roots are so rapidly re-peopled after having appeared completely deserted during the winter. About in the fourth generation a winged form makes its appearance, whose wings are so large in proportion to their bodies, that they have little control over them; but when they rise in the air, they are carried wherever the wind may chance to take them. These lay only three or four eggs each, which produce two kinds of phylloxera, large and small, the former being females, and the latter males. This generation has no digestive organs, being destined exclusively for reproduction; the female lays but one solitary egg, which is especially tenacious of life, being destined to hibernate. From this egg is hatched, on the return of spring, the ordinary root-louse, whose vigor is thus annually renewed. You see it is the winged form that renders possible the rapid spread we have seen elsewhere; also, that its destruction would seemingly put an end to the propagation of the species. But nature has provided against this contingency; for in time of need some of the common egg-layers undertake to lay the large solitary egg which hibernates, and moreover, in a mild climate, some of the millions of common eggs, and a few egg-layers, also survive. These eggs can be destroyed by from 28 to 40 days' submergence; which can only be done in winter without injury to the vines. This, so far, is the only absolute remedy found, except in very sandy soils. The phylloxera cannot live in sandy soil, because it is too weak to crawl from one place to another, the grains of sand obstructing its progress; in adobe soils it crawls along the cracks. When a vine is properly fed, and in soils containing considerable quantities of potash, the vines can live and support a considerable number of the insects. They leave weak vines and attack strong ones, and vines attacked and weakened by them, often live after they leave them, and I think many vines can be saved that have suffered by their ravages. This is possible by circumscribing the vines with some substance that is poisonous to the phylloxera. Among thousands of such that have been tried, bi-sulphid of carbon has proved the most effectual and available; but when applied directly it injures the roots, disappears too rapidly and costs too much. It has done better in chemical combinations from which it is slowly set free; but here is something seemingly better and cheaper:

The Professor here exhibited some "phylloxera bricks," he had just received from France, and which had been used with advantage in the districts afflicted with the insect; they are cheap, costing but the fifth part of a cent apiece, and will retain their virtues a long time. They are made of clay, placed

under the receiver of an air pump, and when the air is exhausted, bisulphide of carbon substituted, and the whole covered with an impervious coat of glue. The combination is thus formed mechanically, and the odor is so pungent that one brick placed incidentally in the Professor's study, caused all that entered to remark its presence. They are to be placed in the ground near the infected plants, three to each.

There was much good testimony to show the efficacy of this mode of application, and he thought a quantity should be imported at once for trial. Then if we find it effectual, we can make the bricks here, and thus circumscribe the evil and save the old vineyards.

But as to the vineyards of the future, he thought it necessary that they should be secured against this danger from the outset. This is now being extensively done in France, by grafting the grape-varieties liable to the phylloxera, upon such stocks as, being liable to the attack of the leaf-inhabiting form only, were safe at the root. The grafting must be done far enough above ground to prevent the graft from casting roots of its own. The Professor here explained some of the best modes of grafting vines, and exhibited tables showing what stocks might be used to the best advantage.

The cultivated American grapes are derived from three wild species: namely, the fox grape of the Atlantic border, the summer grape of the Middle and Southern States, and the frost grape of the West and South. The cultivated varieties derived from the former are generally liable to the attacks of the root louse, but most of those derived from the frost grape are exempt from it. By grafting the former, or the European grape (which includes the Mission), upon the latter, we can still raise the same varieties as now and be safe; or else, we can plant the varieties derived from the frost grape, pure and simple, producing, of course, wines different from those we now make.

As to the expense of getting the stocks, I incline to think it may be obviated by resorting to the native Californian grape—not the Mission, but the wild vine. I find that the latter resembles exceedingly the frost grape of the East, and I therefore think it must be exempt from the attack of the root-phylloxera. You can test this idea very quickly, and I hope you will do so. Strike the cuttings of the wild vine right among some of your infested European vines, and in a few months you will know just what can be done with it. It seems to root very easily, and it will be a great gain if it should prove available.

The Professor closed his remarks by stating that he would say nothing about the subject of wine-making, as Rev. Mr. Bleasdale was to follow him, but would say just this much, that having lately had the opportunity of examining systematically a large number of native wines, he was pleased to be able to say that he had found many excellent ones, greatly superior to what he used to think the State could produce. Evidently much progress had been made

in the handling of wines, and in replacing the sweet and tasteless Mission grape by better varieties. One point seemed to him to deserve especial attention by way of contrast to the European practice of giving the grapes all the sun possible. In the ceaseless sunshine of California, this has the effect of rendering all its wines very strong and heady, which is an objection to their everyday use. Suppose we try to remedy this by not allowing the berries to get quite so dead ripe, leaving them more acid with less sugar, so they will be more nearly like the Zinfandel grape, which yields our best red wines. This and many other points deserve close study, wherein the University will render all possible assistance.

The Professor's remarks were well received, and he was warmly applauded.

Col. Hooper then introduced Rev. J. I. Bleasdale, D. D.

The Father prefaced his remarks by stating that he was a Roman Catholic priest, educated in Portugal, but spent the first portion of his life as a minister in England, and while a student in Portugal, had paid a great deal of attention to the manufacture of wine, which was one of the staple products of that kingdom, that his health failing him, he had been obliged to seek another climate, and went to Australia, and while there he had found occasion to use the knowledge that he had gained in Portugal in the development of the wine interests about Melbourne, and that consequently, now that he was on a vacation, his mind naturally ran in the interests of viniculturists. He had examined a large number of the wines produced in this State, having, in company with others, put them to every test, and while he had found some things to condemn, he had found much to commend. Many of the wines of this State, and some of Sonoma valley, were as excellent an article as was produced in Europe.

EXTRACTS FROM THUDICHUM AND DUPRE.

As a further advancement of the wine industry, it has appeared to me desirable to add in an Appendix two or three chapters from the last, and apparently the most carefully written work on wine in the English language, that just issued by Thüdichum and Duprè, chemists, who have made the study of wine their specialty, and have conducted more careful, exhaustive, and original investigations into the nature and rarer properties of wine than any others that I have heard of. I have purposely omitted the scientific details.

Guyot says to viticulturists—"Plant your new vineyards with the finest vines that you can get in your neighborhood. Each of you can distinguish them perfectly well in your locality. You know their qualities and faults better than the proprietors or men of science. Take the best plants, cultivate them carefully, adopt the mode of cutting which makes them fertile, give

them the manure which is necessary, and you will find that the revenues of your vineyard double; you will find that while before your vineyard nourished only one family, it will now feed two. The salaries will augment, the land will get richer, and you will contribute to increase the wealth of France."

To the proprietors he says—"Buy the canes of the reputed vineyards of your neighborhood; collect the canes of the fine varieties of vines in your own vineyards, plant them in nurseries, and train up new plants which will enable you to replace vines which have died in your established vineyards, or to plant new vineyards altogether. Do not provine, but fill up all places which have become vacant by two-year plants from the nursery. Carry earth and manure to the extent to which the vineyard requires it. Maintain your vines with trunks, and cut them upon a fruit-branch and a wood-branch. Do not spare hand labor, and you will find that your wines will be double in value, and that their quantity will be as great as that produced by the coarsest vines."

To the government M. Guyot says—"Make yourself the instrument of collecting all the canes of the best growths of France immediately after the cutting; plant them in nurseries, and you will have in two years, at a very small expense, millions of vines. If each thousand of these vines be sold at five francs, the revenue will amply cover your expenses. Create in Algeria, in the Landes, in Sologne, in the Champagne, model vineyards and nurseries, from which the deserts which are so close to all these places could be populated; and after ten years the capital employed will return you ten per cent.; the colonies will be fixed, and the wines of France will be bought by all the world. If to these immediate means you superadd the importation and study of foreign vines, and carry on their treatment to the completion of the process of vinification, you will establish the science of viticulture and œnology on a definite and solid basis."

Selection of the most suitable species for the different parts of France:

IN THE SOUTH AND SOUTH-EAST DISTRICTS OF FRANCE.

For Box Raisins.

Mayorquin, ou Bourmen.

Panses.

For Liqueur Wines.

Furmint.

Malvoisie.

Grenache.

Muscat blanc.

Maccabeo.

Muscat noir.

For Good Wines.

Carignane.

Rousanne.

Clarette.

Rousselet.

Marsanne.	Rousette.
Petite-chiraz.	Ugni.
Picpoule.	Viounier.

IN THE SOUTH-WEST DISTRICTS.

For the Best Wines.

Carbenet.	Muscadelle.
Carbenet gris.	Sauvignon.
Carmenère.	Semillon.
Cruchinet.	Verdot.

For the best Brandies.

Folle-blanche.

TESTS FOR ACETIC ACID.

The presence of acetic acid, or an acetate, may be recognized by heating the liquid to be tested with sulphuric acid and alcohol, when acetic ether is produced and easily recognized by its agreeable, refreshing odor; or, without the addition of alcohol, the liberated acetic acid may be recognized by its characteristic smell. Solutions of neutral acetates give a more or less intense blood-red coloration on the addition of perchloride of iron, which is destroyed by the addition of strong mineral acids as well as by boiling, basic acetate of sesquioxide of iron being thrown down in the latter case. If the acetic acid, as is the case in wine, is mixed with a great many other substances, it should be separated from them by distillation, and the tests applied to the distillate, neutralized, if necessary, by potash or ammonia.

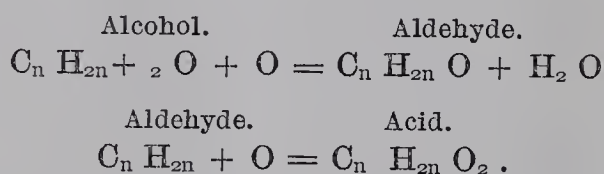
Very minute traces of acetic acid may be recognized in the following manner: If the acid is already in combination with an alkali, the test may be applied directly; but, if such is not the case, the acetic acid must be separated by distillation with somewhat diluted sulphuric acid, the acid distillate neutralized by carbonate of potassium and evaporated to dryness. This dry residue is mixed intimately with a little finely pulverized arsenious acid, introduced into a glass tube and heated. The acetate and arsenious acid react on each other with formation of oxide of kakodyl, easily recognized by its penetrating offensive odor. A second method of recognizing minute quantities of acetic acid consists in boiling the liquid suspected to contain free acetic acid, or the distillate obtained after the addition of sulphuric acid, with freshly precipitated carbonate of silver, filtering the hot solution and evaporating to a small bulk; the last drops are then placed on a microscopic slide and allowed to cool, or, if necessary, allowed to evaporate spontaneously still further. The acetate of silver crystallizes in characteristic forms, and cannot easily be confounded with other crystals. It is advisable to compare the crystals with those produced by the evaporation of a few drops of a pure acetate of silver solution.

That the volatile acid of the wine is almost all acetic acid is readily proved by estimating its atomic weight. Several hundred grammes of the wine to be examined are carefully distilled nearly to dryness; some water is added to the residue and again distilled; these additions of water and distillations are repeated until the distillate coming over is no longer strongly acid. The entire distillate is then neutralized with carbonate of soda and evaporated to dryness on a water-bath. The residue is taken up in a little water acidulated with diluted sulphuric acid, and any hydrochloric acid it may contain precipitated by the careful addition of a little sulphate of silver solution.

The liquid poured off the chloride of silver is then distilled, and the acid liquid neutralized with pure carbonate of baryta. The clear filtered solution is evaporated on a water-bath, the residue dried at a temperature of 115° , and weighed. It is then decomposed by sulphuric acid, and the resulting sulphate of baryta is weighed after ignition. From these data the equivalent of the volatile acid is readily calculated. Pure acetate of baryta should contain 53.54 per cent. barium.

ALDEHYDES IN WINE.

An aldehyde is the first product of the conversion of a primary alcohol into its acid by means of an oxidizing agent, thus:



The only aldehyde of the series which has been proved to be present in wine up to this time is acet-aldehyde ($C_2 H_4 O$), produced by the oxidation of ethylic alcohol. It seems not improbable, however, that wine owes part of its bouquet to the presence of some of the higher members of the series.

Their presence may, perhaps, be inferred from the considerable absorbing power for oxygen possessed by some wines, a property highly characteristic of aldehydes.

ACET-ALDEHYDE.

Wine, when exposed to the action of atmospheric air, is gradually converted into vinegar. If a tolerably free access of air be permitted, the only product formed from the alcohol is acetic acid. If, however, the access of air is very limited, oxidation frequently stops short at the first stage, and aldehyde is formed. This conversion of alcohol into aldehyde and acid (acetic fermentation) seems to be promoted by the presence of albuminous substances, though it is not by any means, like alcoholic fermentation, dependent on these; and, accordingly, wines containing such matters are much more liable to this fermentation than such as are free from them.

Aldehyde may be prepared by oxidizing alcohol by means of binocide of manganese and dilute sulphuric acid. It forms a colorless, very mobile liq-

uid of extremely suffocating smell, the inhalation of its vapor causing spasms of the glottis. Its elementary formula is $C_2 H_4 O$. It boils at a temperature of $22^\circ C.$, has a specific gravity of 0.8055, and mixes with water, alcohol, and ether in every proportion. When exposed to the action of the air, more particularly when diluted, it rapidly absorbs oxygen, and is converted into acetic acid. When boiled with silver salts, it reduces them to the metallic state, the silver being deposited as a bright mirror on the sides of the vessel. This reaction may be used to detect the presence of even minute quantities of aldehyde. Of course no other substances having a similar action on silver salts, as formic acid for example, must be present. Nascent hydrogen reconverts the aldehyde into alcohol ($C_2 H_4 O + H_2 = C_2 H_6 O$).

The presence of aldehyde in a wine, even in a very minute quantity, is readily detected by its very peculiar and characteristic smell and flavor. If such a wine be neutralized by an alkali to fix the volatile acids, and submitted to distillation through a well-cooled condenser, the aldehyde may be readily detected in the first portions of the distillate by its smell, flavor, its reducing action on silver salts, and by its easy conversion into acetic acid.

GLUCOMETERS.

The sugar can be easily ascertained by the use of a so-called "glucometer," or spindle of glass, such as is used for ascertaining specific gravities in general. The scale of the glucometer should be so divided as to indicate per cents. of fruit sugar directly, and not imaginary degrees arbitrarily fixed by inventors. But any "gravimeter" indicating specific gravities can be used to ascertain the density of a must, and from that the amount of fruit sugar contained in it can easily be calculated. Some convenient French glucometers are so arranged as to indicate, by one degree of their scale, a quantity of fruit sugar, which, after fermentation, would yield a volume per cent. of the must of absolute alcohol, that is about 1,500 grms. of sugar per hectolitre of must. When the sugar is calculated from the specific gravity found absolutely, the total solids found must not be taken for sugar only, but from one-tenth to one-fifteenth has to be deducted as being other matters than sugar. The sugar can be determined absolutely by the chemical and optical methods of saccharometry described in a subsequent chapter. Must which would yield from 6 to 8 per cent. of alcohol will give only "small wine," and grapes showing this quality of must should not be harvested. When the samples of must produced show above 8 per cent. of future alcohol, the vintage may be contemplated. But it should never be actually undertaken as long as by repeated trials any increase in the quantity of sugar in the grapes is observable. Even when the sugar has attained its maximum, and remains stationary, it is not on that account necessary to proceed to gather the grapes, as, if the season be favorable, they will still undergo beneficial changes by hanging upon the vine. In the north and center of France must will seldom show more than 15° , but, in the hottest regions of the south, in parts of Spain, Italy,

Cyprus, Madeira, must is produced which shows up to 24° , *i. e.* degrees of the French glucometer. Of course this sugar can never be entirely transformed into alcohol, as the action of fermentation ceases in any fluid containing above 16 per cent. of alcohol. The excess, therefore, remains as sugar, as in the liquorous wines of Lunel, and the sweet Sauternes, which are now taking the place of Lunel. If it is not intended to produce such syrupy wines, the must produced can be reduced by the addition of water to 15° or even 12° , and will then ferment completely and produce dry wines of the best character. This dilution of a heavy must is preferable to the harvesting at the time when the trial juice shows from 12° to 15° . If, on the other hand, a must coming from good vines, in an unfavorable year, shows but 8° of future alcohol, it may advantageously receive an addition of pure cane sugar up to 12° , every degree requiring an addition of 1,500 grammes of cane sugar to each hectolitre of must. In no case should artificial grape sugar, or starch sugar, or glucose be used. We have tried a variety of the best and whitest samples which can be procured, and find that they all impart a nasty taste to the fermented product. When the viticulturist has decided all the questions raised by these considerations, and made his preparations accordingly, he should proceed to the actual vintage.

REPORT OF THE JURY OF EXPERTS

APPOINTED BY THE BOARD OF MANAGERS OF THE THIRTEENTH INDUSTRIAL EXHIBITION, HELD IN SAN FRANCISCO, 1878.

To the President and Members of the Board of Managers:

GENTLEMEN—We, the members of the Jury of Wine Experts, respectfully submit that we, or a quorum of us, met on six several occasions to examine the samples of wines—fifty-four in all—sent to the late Exhibition for that purpose.

2. The result of our labors will be found at pages 70, 71 and 72, in tabulated form. It will there be seen that out of so small a number of samples no less than 32 have been placed in the first, or highest class, and 17 in the second, of widely different ages and descriptions, while none fell into the third, or lowest. The remainder, with one exception, were quite young wines, of vintage 1877.

3. It is unusual in our experience to meet with so large a proportion of samples of first-class merit.

4. It was at one time thought desirable to publish the average number of marks awarded to each, as also our critical notes; but the idea was abandoned, since the number constituting the first-class ranged only between 17 and 20, both inclusive, and might give rise to useless comments. Whatever fell below an average of 10 marks was not classed.

5. The bottles when placed before the judges were all tied up in paper bags so as to effectually prevent them from being recognized in any possible way while being examined.

6. All the awards given, and the *critical* remarks recorded, are the joint expression of the judges; and, though there occurred at times considerable difference in the number of marks recorded by individuals, yet the justice of the verdict, which was the average of all, was never questioned.

7. The heads under which the awards are reported were considered sufficient to describe each sample. It will be observed that the prices at which most of them can be obtained in small quantities for domestic use have been furnished by the city wine merchants, and will be found convenient for those who may avail themselves of our opinions.

8. Rev. Dr. Bleasdale, the Secretary and Reporter, has embraced the opportunity to add much to the interest of the report for those who take an interest in wines and vineyards. The reports of the Portuguese Commissioner for viticulture and wine-making, which he has translated, we believe will be a very valuable addition to the general fund of knowledge concerning those wines of Portugal which are attempted to be imitated by the wine-makers of this State, and also as to methods of pruning vines, etc. He has also bestowed much time and care on distilling and determining the essential points in our native and some foreign wines, such as their alcohol, tannin, etc., tables of which will be found at pages 99-100. To qualify himself and in order to render his experience available here, he visited the chief vineyards of the centre of the State during the fruit season.

9. The practical suggestions he offers are the result of a study of wines begun in Portugal many years ago, and carried on for more than twenty-five years in the various wine districts of Australia, under conditions of soil and climate quite similar to most of those of California.

In conclusion, we tender our respectful recognition of the uniform courtesy shown to us, and the desire to afford us every facility desirable, during our labors, to the President and Board of Managers; to the Secretary, J. H. Culver, Esq.; to J. H. Gilmore, the Superintendent; and the Janitor.

EUG. W. HILGARD, Chairman,
CHAS. BERTODY, M. D.,
H. BEHR, M. D.,
W. HAMMOND, M. D.,
B. B. REDDING,
A. HERBST.

JOHN I. BLEASDALE, D. D., Secretary and Reporter.

FINANCIAL STATEMENT OF THE THIRTEENTH INDUSTRIAL EXHIBITION.

MECHANICS' INSTITUTE, }
SAN FRANCISCO, October 7, 1878. }

To the President and Board of Managers of the Thirteenth Industrial Exhibition:

GENTLEMEN—I herewith submit my report of the Receipts and Disbursements on account of the Thirteenth Industrial Exhibition of 1878; also of the Pavilion Fund, and a Ticket Report, showing each class, and by whom sold.

Yours, Respectfully,

J. A. BAUER, Treasurer.

DAILY RECEIPTS AT THE DOOR.

1878.		DOUBLE SEASON TICKETS.	SINGLE SEASON TICKETS.	CHILDREN'S SEASON TICKETS.	ADULT SINGLE ADMISSION TICKETS.	CHILDREN'S SINGLE ADMISSION TICKETS.	ADULT AND CHILDREN'S SINGLE ADMISSION TICKETS, 25 CTS.	AMOUNT.
August	13.....	292	70	54	227	21	.....	\$1,869 75
"	14.....	150	48	28	331	37	.....	1,110 75
"	15.....	147	28	20	447	31	.....	1,080 25
"	16.....	121	32	25	547	47	.....	1,023 75
"	17.....	266	64	21	1,630	263	.....	2,434 25
"	19.....	94	21	22	617	77	.....	893 75
"	20.....	100	7	24	765	59	.....	954 25
"	21.....	49	7	4	757	74	.....	669 00
"	22.....	51	5	8	907	76	.....	754 50
"	23.....	42	5	4	876	79	.....	688 75
"	24.....	70	18	9	3,527	759	.....	2,355 75
"	26.....	21	.....	6	776	88	.....	524 00
"	27.....	16	2	4	1,044	98	.....	638 50
"	28.....	13	.....	1	1,090	93	.....	634 75
"	29.....	9	1	4	954	105	.....	557 25
"	30.....	12	.....	.....	1,029	131	.....	607 25
"	31.....	26	2	5	4,082	870	.....	2,402 00
September	1.....	23	2	.....	684	68	.....	480 00
"	3.....	2	.....	.....	914	108	.....	494 00
"	4.....	1	1	2	1,034	115	.....	556 75
"	5.....	1	1	.....	1,123	156	.....	608 50
"	6.....	1	1	.....	1,133	167	.....	616 25
"	7.....	1	.....	.....	3,854	769	.....	2,124 25
"	9.....	1	.....	.....	777	97	.....	417 75
"	10.....	.....	.....	.....	817	96	.....	432 50
"	11.....	.....	.....	.....	1,077	155	.....	577 25
"	12.....	.....	.....	.....	1,447	141	.....	758 75
"	13.....	.....	.....	.....	1,936	206	.....	1,019 50
"	13.....	.....	.....	.....	5,010	977	.....	2,749 25
"	15.....	.....	.....	.....	.....	.....	6,051	1,512 75
Totals.. ..		1,506	310	241	39,412	5,963	6,051	\$31,546 00

ACCOUNT OF TICKETS SOLD, AND BY WHOM.

NAMES.	DOUBLE SEASON TICKETS.	SINGLE SEASON TICKETS.	CHILDREN'S SEASON TICKETS.	ADULT SINGLE ADMISSION TICKETS.	CHILDREN'S SINGLE ADMISSION TICKETS.	ADULT AND CHILDREN'S ADMISSION TICKETS, 25 CENTS.	EXCURSION TICKETS.	APPRENTICE TICKETS, \$1.50 EACH.	EMPLOYEE'S TICKETS, \$1.50 EACH.	AMOUNT.
J. F. Miller, Clerk.....	1,509	310	241	39,412	5,963	6,051	.....	.....	.....	\$31,546 00
Browning, J. & Bro.....	45	2	.....	.....	.....	.....	.....	.....	.....	236 00
Bancroft & Co.....	2	1	.....	.....	.....	.....	.....	.....	.....	13 00
Bauer, J. A.....	68	5	.....	.....	.....	.....	.....	.....	.....	360 00
Burns, I.....	3	.....	.....	.....	.....	.....	.....	.....	.....	15 00
Cal. Machine Works.....	9	3	.....	.....	.....	.....	.....	.....	.....	54 00
Culver, J. H.....	26	4	.....	.....	.....	.....	.....	.....	.....	142 00
Davis, H. & Co.....	.....	1	.....	.....	.....	.....	.....	.....	.....	3 00
Doble, Abner.....	4	.....	.....	.....	.....	.....	.....	.....	.....	20 00
Duffy, James.....	12	.....	.....	.....	.....	.....	.....	.....	.....	60 00
Dinsmore, Samuel.....	9	.....	.....	.....	.....	.....	.....	.....	.....	45 00
Drury, James.....	5	1	.....	.....	.....	.....	.....	.....	.....	28 00
Fish, A. L.....	23	5	.....	.....	.....	.....	.....	.....	.....	130 00
Gilmore, J. H.....	.....	.....	.....	.....	.....	.....	.....	.....	28	42 00
Garratt, W. T.....	7	.....	.....	.....	.....	.....	.....	.....	.....	35 00
Golden Gate & Miners' Fd'y	2	.....	.....	.....	.....	.....	.....	.....	.....	10 00
Gannon, P. T.....	1	.....	.....	.....	.....	.....	.....	.....	.....	5 00
Huntington, Hopkins & Co.	3	.....	.....	.....	.....	.....	.....	.....	.....	15 00
Hinckley, Spiers & Hayes ..	26	1	.....	.....	.....	.....	.....	.....	.....	133 00
Hallidie, A. S.....	15	.....	.....	.....	.....	.....	.....	.....	.....	75 00
Hobbs, Pomeroy & Co.....	8	1	.....	.....	.....	.....	.....	.....	.....	43 00
Hunter, Nathaniel.....	10	6	.....	.....	.....	.....	.....	.....	.....	68 00
Hutchinson, H. L.....	52	6	.....	.....	.....	.....	*885	.....	.....	460 25
Hammer, L. H.....	3	1	.....	.....	.....	.....	.....	.....	.....	18 00
Kerr, David.....	13	1	.....	.....	.....	.....	.....	.....	.....	68 00
Loring, Francis H.....	2	.....	.....	.....	.....	.....	.....	.....	.....	10 00
Macdonald, D. A.....	34	.....	.....	.....	.....	.....	.....	.....	.....	170 00
McGrath, Edward.....	18	.....	.....	.....	.....	.....	.....	.....	.....	90 00
Prior, J. K.....	12	2	.....	.....	.....	.....	.....	.....	.....	66 00
Phelps, W. S. & Co.....	9	2	.....	.....	.....	.....	.....	.....	.....	51 00
Rankin, Brayton & Co.....	3	1	.....	.....	.....	.....	.....	.....	.....	18 00
Roman & Co.....	10	4	.....	.....	.....	.....	.....	.....	.....	62 00
Steiger, C. R.....	15	10	.....	.....	.....	.....	.....	.....	.....	105 00
S. F. Gas Light Co.....	12	13	.....	.....	.....	.....	.....	.....	.....	99 00
Savage & Son.....	1	.....	.....	.....	.....	.....	.....	.....	.....	5 00
Sherman, Hyde & Co.....	44	5	.....	.....	.....	.....	.....	.....	.....	235 00
Spaulding, Geo.....	8	2	.....	.....	.....	.....	.....	.....	.....	46 00
Stetson, J. B.....	20	3	.....	.....	.....	.....	.....	.....	.....	109 00
Stott, A. W.....	37	8	.....	.....	.....	.....	.....	.....	.....	209 00
Spring Valley Water Co....	19	18	.....	.....	.....	.....	.....	.....	.....	149 00
Smith, Henry S.....	157	5	.....	.....	.....	.....	.....	.....	.....	800 00
Scott, Irving M.....	25	20	.....	.....	.....	.....	.....	.....	.....	389 00
Van Winkle, I. S.....	5	.....	.....	.....	.....	.....	.....	136	.....	25 00
Weed & Kingwell.....	5	.....	.....	.....	.....	.....	.....	.....	.....	25 00
Will & Finck.....	7	2	.....	.....	.....	.....	.....	.....	.....	41 00
Waterhouse, C.....	21	5	.....	.....	.....	.....	.....	.....	.....	120 00
Librarian, Institute.....	184	19	.....	.....	.....	.....	.....	.....	.....	1,027 00
Wheeler, S. H.....	5	.....	.....	.....	.....	.....	.....	.....	.....	25 00
Totals.....	2,250	467	241	39,412	5,963	6,051	885	136	28	\$37,500 25
Deduct Commissions.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	210 60
Total.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	\$37,289 65

* 390 @ 15 cents and 495 @ 25 cents.

TREASURER'S REPORT.

117

RECAPITULATION.

2,520 Double Season Tickets.....	@ \$5 00	\$12,600 00
497 Single Season Tickets.....	@ 3 00	1,401 00
241 Children's Season Tickets.....	@ 1 50	361 50
136 Apprentices' Season Tickets.....	@ 1 50	204 00
27 Employees' Season Tickets.....	@ 1 50	42 00
6,051 Adults and Children's Admission Tickets.....	@ 25c	1,512 75
39,412 Adults' Single Admission Tickets.....	@ 50c	19,706 00
5,963 Children's Single Admission Tickets.....	@ 25c	1,490 75
380 Excursion Tickets.....	@ 15c	58 50
485 Excursion Tickets.....	@ 25c	123 75
Total.....		\$37,500 25
Deduct Commissions.....		210 60
		<u>\$37,289 65</u>

TREASURER'S REPORT.

EXPENDITURES.

ADVERTISING—Alta.....	\$60 00
Abend Post.....	19 50
Argonaut.....	13 00
Brown, D., advertising in four papers.....	24 00
Bulletin.....	84 50
Beattie, W., posting bills in country.....	35 00
Commercial Herald.....	6 00
Cheever, S. G., advertising in six papers.....	35 00
Chronicle.....	137 00
Call.....	94 50
Courier de San Francisco.....	12 00
California Farmer.....	15 00
Dewey & Co., advertising in Fair Daily, Rural Press, and Mining and Scientific Press.....	100 00
Examiner.....	66 00
Figaro.....	20 00
Fisher, L. P. Agt., advertising in country papers.....	119 50
Golden Era... ..	6 00
German Demokrat.....	22 50
Hebrew and Hebrew Observer.....	17 00
Journal of Commerce.....	8 00
Keyt & Co., posting bills seven weeks.....	70 00
Miller, M. A. & Co., flagging cars in Oakland...	6 00

THIRTEENTH INDUSTRIAL EXHIBITION.

News Letter.....	13 00	
Post.. ..	82 00	
Pacific Appeal.....	5 00	
Record-Union.....	25 00	
Spirit of the Times.....	10 00	
		<hr/> \$1,105 50
ART GALLERY—Brideson, W., cartage pictures.....	\$60 25	
Cook, O. P., cartage pictures.....	9 00	
Doerrerr, W. G., painting and coloring walls....	149 00	
Dampf & Co., glass.....	1 75	
Davis, J. A., collecting and hanging pictures....	5 00	
Fields, J., cartage pictures.....	10 00	
Gump, S. & G., gilt moulding.....	21 06	
Hewes, David, moving statuary.....	27 40	
Hutchinson & Mann, insurance on pictures.....	52 50	
Howe, G. A., cartage paintings.....	2 50	
Helmken, J. T., cord, screw eyes, nails and twine	7 35	
Masset, M., cartage pictures.. ..	57 00	
Martin, J. R., salary as superintendent, \$250 00; petty expenses, \$1 95.....	251 95	
Short, D. M., use horse and wagon five days....	12 50	
Snow & May, moving statuary.....	65 00	
Vanni, N. & Co., labor.....	28 50	
Walker, G. T., collecting pictures 17 days @ \$3	51 00	
Wages.....	139 75	
Wells, Marion, cleaning statuary.....	12 00	
		<hr/> \$963 51
DECORATIONS—Curtin, C., muslin.....	\$9 51	
Crawford, A. & Co., bunting and manila.....	5 91	
Doerrerr, W. G., painting fountains and bronzing statues.....	36 40	
Davis, R. P., one flag.....	8 00	
Krumbeck, C., cartage trout.....	5 00	
Pasquale, B., two flags.....	16 00	
Ransome, E. L., jets, etc., for fountains.....	30 00	
Wages.....	120 24	
		<hr/> \$231 06
EXPENSE ACCOUNT—American Dist. Telegraph Co., rent of instrument and telegraphers.....	\$23 10	
Amphion Club, services at opening exercises....	25 00	
Bradley & Rulofson, 6 photographs of medal....	3 00	
Bauer, J. A., petty expenses.	24 40	
Bell Telephone Co., constructing telephone line to Mechanics' Institute.....	10 00	

Britton & Rey, design for diplomas and 125 diplomas.....	50 00
J. H. Culver, postage, envelopes, cards, and petty expenses.....	247 15
Catherine, A., removing dirt.....	7 00
Gilmore, J. H., petty expenses.....	21 12
Hunter, N., judgment and costs case McInery..	18 50
Kalloch, I. S., rent Metropolitan Temple for opening exercises.....	25 00
Martin, C., plans for Location Committee.....	23 00
Muybridge, E. J., exhibit of photographic views, "The Horse in Motion".....	90 00
Seregni, F., filling out diplomas.....	10 75
Seventh St. Livery Stable, horse and buggy hire, 39 days.....	87 75
Tweedale, T. S., petty expenses.....	39 90
Whitton, C. F., 2 days' attendance 23d District Court.....	20 00
Winans, Belknap & Godoy, professional services case McInery.....	25 00

 \$750 67

FITTING AND FURNISHING—Boesch, E., repairs reflectors and lamps.....	\$34 00
California Electrical Works, putting wires and gongs in order.....	25 75
Doerrerr, W. G., painting and whitening.....	249 35
Donovan, M. J. & J. J., painting.....	140 00
Dunham, Carrigan & Co., hardware.....	27 30
Figer Bros., hair brushes.....	2 00
Fletcher, W. M., wages of men, lumber and hardware.....	265 32
Garratt, W. T., pipe and fittings.....	351 84
Gillespie & Furber, 2 dozen brooms.....	11 00
Grubb, S. N., valves, wire, pillars, etc.....	13 20
Holbrook, Merrill & Stetson, labor on reflectors, fountains and gutters—water pots and cups...	89 25
Huntington, Hopkins & Co., white lead, tallow..	1 47
Iredale, A. S., repairs to roof pipes.....	10 25
Joost Bros., hardware.....	7 50
Liddle & Kaeding, bamboo poles, net ring and handle.....	6 75
Larkin & Flaherty, covering kitchen roof with asphaltum.....	24 00
Levison Bros., 6 feather brushes.....	24 00
Macdonald, D. A. & Co., mill work and material	99 90
Miller, J. M., loan of furniture...	21 00
Mueller, F. W., blacksmithing.....	13 00

Nye, A. F. & Co., gas burners, pressure gauge, etc.....	102 75	
Pendergast & Smith, iron bolts, nuts, etc.....	8 80	
Weed & Kingwell, 2 compression cocks.....	6 00	
Whittier, Fuller & Co., glass, paints, oils, and glazing.....	72 75	
Wells, Russell & Co., work on tank.....	3 50	
Wages.....	459 25	
	<hr/>	
	\$2,069 93	
Sale of firewood.....	8 00	
	<hr/>	
		\$2,061 93
FUEL—Morris, T. B. & Co., $43\frac{1}{2}\frac{97}{40}$ tons coal.....		219 38
HORTICULTURAL GARDEN—Gallego, R. C., putting on cover.....	\$65 00	
Hutchinson, J., plants.....	9 00	
Miller, Sievers & Co., plants.....	23 10	
Meyer, E., plants.....	5 50	
McDonald, J., putting canvas on roof and re- pairing do.....	100 00	
Saywell, T., fixing garden, plants and guano....	51 00	
Sievers, J. H., plants.....	34 50	
Stone, Lake, carting loam.....	3 75	
Wages of gardeners.....	186 50	
	<hr/>	
		\$478 35
LIGHTING—Brandt, B. L., use of carburetors.....	29 92	
Gas Consumers' Association, half of saving in gas.....	184 69	
George, H., inspecting gas meters.....	40 00	
San Francisco Gas Light Co., 3,900 feet gas @ \$3 75 and 1,058,100 feet @ \$3 per 1,000 feet..	3,188 95	
Taylor, F. B. & Co., gasoline.....	80 00	
Yates & Co., alcohol and wick.....	24 40	
	<hr/>	
		\$3,547 96
MUSIC—Great Western Band ..		\$2,465 00
PREMIUMS—Hutchinson, J., plants and flowers	\$105 00	
Miller & Sievers, plants and flowers	100 00	
Murray, W., fruit, etc.....	250 00	
Saywell, T., flowers.....	20 00	
Upton, E. A., flowers.	15 00	
	<hr/>	
		\$490 00

TREASURER'S REPORT.

121

PRINTING AND STATIONERY—Bancroft, A. L. & Co., stationery.....

\$27 45

Britton, Rey & Co., 1,000 letter heads and engraving

27 50

Cubery & Co., cards and covers for pamphlets..

6 00

Culver, J. H., stationery.....

1 50

Cunningham, Curtiss & Welch, rubber bands...

2 00

Crocker, H. S. & Co., tickets, cards and rubber bands.....

282 63

Denny, E. & Co., scale and drawing paper.....

3 00

Gordon, C. W., register book contracts and 1,500 circulars.....

19 50

Spaulding, Barto & Co., tickets, cards, circulars, envelopes, catalogues, etc.....

271 00

Sterett, B. F., posters, tickets and tags.....

33 25

Winterburn & Co., paper, circulars, blanks and printing on envelopes.....

34 50

\$708 33

Sale of art catalogues.....

73 25

\$635 08

SALARIES AND WAGES—Superintendent.....\$1,116 50

Secretary

825 00

Book keeper.....

175 00

Clerks, watchmen, janitor, messenger and laborers.....

4,336 80

\$6,453 30

WATER—Spring Valley Water Works.....

466 60

YELLOW FEVER SUFFERERS' BENEFIT

1,035 90

Total expenditures.....

\$20,904 24

PROFIT AND LOSS.

REVENUE—Sale of tickets

\$37,289 65

Sale of privileges.....

3,855 90

\$41,145 55

EXPENDITURES—Items below....

20,904 24

PROFIT—Transferred to Pavilion Fund.....

\$20,241 31

RECAPITULATION OF EXPENDITURES.

	PREPARA- TORY.	CURRENT DURING FAIR.	SUBSE- QUENT.	TOTAL.
Advertising.....	\$1,036 50	\$62 00	\$7 00	\$1,105 50
Art Gallery.....	331 86	480 75	150 90	963 51
Decorations.....	141 55	49 51	40 00	231 06
Expense Account.....	282 42	461 25	7 00	750 67
Fitting and Furnishing.....	1,962 43	99 50		2,061 93
Horticultural Garden.....	367 35	111 00		478 35
Fuel.....		219 38		219 38
Lights..	54 65	3,493 31		3,547 96
Music.....		2,465 00		2,465 00
Premiums.....		490 00		490 00
Printing and Stationery.....	122 40	512 68		635 08
Salaries and Wages.....	2,046 50	3,938 30	468 50	6,453 30
Water...		466 60		466 60
Yellow fever sufferers' benefit.....	\$6,345 66	\$12,849 28	\$673 40	\$19,868 34
				1,035 90
Total.....				\$20,904 24

COST PER DAY OF THE THIRTEENTH INDUSTRIAL EXHIBITION.

(OPEN THIRTY DAYS.)

Preparatory expenses.....	\$6,345 66	= \$211 52 per day.
Current expenses during Fair.....	12,849 28	= 428 31 per day.
Subsequent expenses.....	673 40	= 22 43 per day.
	\$19,868 34	= \$662 26 per day.

PAVILION FUND.

RECEIPTS.

RENTS—California Guard.....	\$100 00	
Garibaldi Guard.....	75 00	
Chairs.....	103 60	
		\$278 60
SALE OF FURNITURE—From H. S. Smith.....		35 00
Transfer from 12th Exhibition.....		724 14
Transfer from 13th Exhibition.....		20,241 31
Mechanics' Institute.....		1,250 00
		\$22,529 05

DISBURSEMENTS.

Britton, Rey & Co., printing tickets.....	\$92 80	
Brown, W. L., repairing boat models.....	18 50	
Boyle, O., paving Market Street, opposite Eighth....	424 22	
Culver, J. H., petty cash.....	29 25	
Discount, \$10,000 silver sold.....	195 00	
Demarest & Co., bronze medals, etc.....	1,118 88	
Elevator, advertising.....	5 00	
Gilbert & Moore, rent of desk.....	4 00	
Gibson, J. C., carpenter work.....	17 00	
Hilton, S., repairs.....	20 00	
Hutchinson & Mann, insurance.....	126 00	
Hutchinson, H. L., express charges on medals.....	37 00	
Iredale, A. S., repairs, gutters, etc.....	4 25	
Joost Bros., hinges.....	1 95	
Lochbaum, A. H., boxes for medals.....	210 00	
La Voce del Popolo, advertising.....	4 00	
Martel, J. L., pro rata assessment Eighth and Market streets.....	14 50	
McCreery, A. B., rent of Pavilion lot, year 1877.....	12 00	
McCreery, A. B., paving Market Street.....	2,682 15	
Mechanics' Institute, cash.....	10,000 00	
Nathan, B. & Co., rent of crockery.....	1 55	
Otis, S. Agent, use of carburetor.....	287 42	
Premiums.....	30 00	
Spring Valley Water Works, water for Twelfth Indus- trial Exhibition.....	666 66	
Spring Valley Water Works, water since, at \$5 per month.....	35 00	
Selleck, J. E., restaurant charges.....	15 00	
Tuebner & Hoffman, repairs show case.....	13 00	
Trumbull, R. J., guano.....	1 00	
Tweedale, T. S., salary as keeper of Pavilion.....	360 00	
Cash on hand, October 7, 1878.....	6,102 92	
		\$22,529 05

We have examined the above statement, and approve the same.

C. WATERHOUSE,
DAVID KERR,
D. A. MACDONALD,
Auditing Committee.

REPORTS OF STANDING COMMITTEES.

BUILDING.

Herewith please find the amount and items of expenditures by the Building Committee for the Thirteenth Industrial Exhibition:

Carpenter work.....	\$265 32
Mill work.....	99 90
Hardware.....	34 80
Repairing canvas and putting on roof.....	115 00
Asphaltum roof for kitchen.....	24 00
Painting in Horticultural Garden.....	140 00
Painting in main building.....	88 25
Plumbing.....	10 25
Electrical work.....	25 25
Stretching canvas on roof of garden.....	65 00
Hire of laborers.....	100 00
	<hr/>
	\$967 77
Less allowed on repairing canvas.....	15 00
	<hr/>
	\$952 77

Respectfully submitted,

D. A. MACDONALD,
H. S. SMITH,
EDWARD McGRATH.

CIRCULARS AND CLASSIFICATION.

About April 5th a circular setting forth the time of opening, aim, and advantages of the Thirteenth Exhibition was prepared and issued by this Committee. They were sent by mail to all the principal towns of this and the adjoining States.

As it was decided by the Managers that no awards should be given, the usual classification list was not prepared, thus saving much time and labor to the Committee.

Should it be decided to give premiums at the next Fair, the subject of classification should receive early attention, as there can be no doubt that a

careful discriminating and just classification of articles for awards, would have much to do in inducing our inventors, manufacturers, and producers in making an exhibit.

As a rule the *best* is what is placed on exhibition, and the artist or artisan in order to prepare the same must have time, and for this very reason of not knowing in season the awards offered, many have been deterred from attempting to gain a prize, knowing it would be impossible in the time given to do themselves justice.

The number of exhibitors this year was 601, and the articles exhibited, with few exceptions, embraced almost everything of use or ornament. It is much to be regretted that the exceptions were of some of our most prominent manufacturers. Notably woolen goods, wooden ware, and boots and shoes.

Heretofore the time for holding the election and change of officers has been of injury to the proper working of the committees, it occurring at a time when the fairs had been commenced but nothing accomplished. It is proposed to change the time of election to an earlier date, thus giving the Board that organizes and commences the work of an exhibition an opportunity to carry it through to its termination, a result much to be desired.

We are of the opinion that a direct appeal to individuals, by circulars emanating from the Board of Managers, would be more successful in obtaining exhibits than a general advertisement in the newspapers.

All of which is most respectfully submitted,

EDW'D McGRATH,
S. H. WHEELER,
C. WATERHOUSE.

PRINTING AND ADVERTISING.

The Committee on Printing and Advertising beg to make the following report of their transactions for the Thirteenth Industrial Exhibition:

Their expenditures necessarily commenced at the organization of the Board of Managers, although the majority of the Committee, as at present constituted, only became connected with it at about the opening of the Fair, they wish to express their satisfaction at the manner in which the business of this department was conducted by the former committee.

The total expenses of printing, advertising, and stationery amounts to \$1,740.58, being \$1,098.65 less than that of last year, and in our opinion without injury to the success of the Fair.

We would recommend for the future that the same economy be practiced in this department, and even at a less expenditure the same results may be obtained.

Respectfully submitted,

JAMES DRURY,
NATHANIEL HUNTER,
DAVID KERR.

POWER AND MACHINERY.

Your Committee would submit their final report, as follows:

An engineer, Geo. W. Phillips, was employed to take charge of the engine and machinery at a salary of \$4 per day; a fireman at \$3 per day. The engine and machinery were found in good condition, requiring but a small expense to put them in running order; and in this department your Committee are pleased to report that all matters connected therewith were conducted with care. No complaints were made by any of the exhibitors or the Superintendent as to neglect of duty or ungentlemanly conduct by any of the employees.

The expenses in this department have been closely guarded and are much less than at any former exhibition, and are as follows:

Coal (Seattle screenings).....	\$219 38
Salaries.....	286 00
Gas pipe and fitting.....	16 75
Hardware, forging, bolts, oil, &c.....	10 47
Making a total of.....	<u>\$532 60</u>

The engine and boiler have been thoroughly cleaned and oiled for their protection. All the tools, belts, &c., have been turned over to the janitor for future use.

Your Committee would recommend that the thanks of this Board be extended to A. L. Fish & Co. and W. T. Garratt for the use of pumps, and to Weed & Kingwell for the use of lubricator during the Exhibition; and your Committee take this opportunity of extending their thanks to the members of other Committees and the Superintendent of this Board for their kindness in assisting us in the discharge of our duties.

All of which is respectfully submitted,

H. S. SMITH,
S. DINSMORE,
A. L. FISH.

RULES, REGULATIONS AND AWARDS.

Your Committee on Rules, Regulations and Awards, beg leave to submit this, their final report:

REGULATIONS AND AWARDS.

At the inception of this Exhibition the Board of Managers adopted the rules and regulations which governed the previous Exhibitions, and these were carried out to the evident satisfaction of all concerned.

AWARDS.

The limited number of premiums offered, and the few classes of exhibits to which they were to be applied, have rendered the work of your Committee comparatively light.

The Board offered premiums as follows:

INVENTIONS.

For the most useful and meritorious Pacific Coast invention, invented since 1876, and on exhibition, Gold Medal.

HORTICULTURAL GARDENS.

For the best continuous display of plants and flowers.....	\$100
For the second best do.....	75
For the best display of cut flowers between dates	30
For the second best do.....	20
For the best display of cut flowers by amateurs....	15
For the second best do.....	10

DRAWINGS.

For drawings from public and private schools, the Institute Diploma, as recommended by the Committee appointed to examine them.

Juries for awarding premiums were appointed as follows:

On the most Useful and Meritorious Invention exhibited, and invented on the Pacific Coast since 1876—George L. Pierce, Gen. B. S. Alexander, H. J. McLaren, Col. Geo. H. Mendell, A. P. Dietz, J. D. Hayne, M. W. Belshaw.

Horticultural Exhibit—R. J. Trumbull, Edward J. Wickson, E. J. Hooper.

Drawings from the Public and Private Schools—F. Von Leicht, G. F. Allardt, J. H. Wilder.

In addition to the above a jury was appointed for the purpose of deciding the merits of California Wines. This jury was composed as follows: Chas. Bertody, M. D., B. B. Redding, Esq., Rev. J. J. Bleasdale, D. D., Adolph Herbst, Esq., Wm. Hammond, M. D., Charles Behr, M. D., Prof. E. H. Hilgård.

The several juries entered promptly upon their duties and made their awards, which will be found elsewhere in the report.

The Jury on California Wines gave much time and attention to their duties, and it is expected that their report will be of great benefit to the wine-growing interest of the State by giving reliable information upon this important industry.

The thanks of the Board of Managers are due to the members of the different Juries for the zealous manner in which they have performed their arduous duties.

NATHANIEL HUNTER,
JAMES DRURY,
J. A. BAUER.

TICKETS AND ADMISSIONS.

We have to report that the system of admission tickets recommended by us and adopted by the Managers of the Thirteenth Industrial Exhibition proved satisfactory.

The coupon tickets entirely prevented the abuse heretofore practiced of repeating at the door, and the employees' checks fully answered the purpose for which they were designed. Disappointed ex-members and others not in accord with the management, predicted a failure of the new system of tickets, and exerted what influence they could to injure the same; but despite all efforts to the contrary, we pronounce the system a complete success, and respectfully refer all parties interested to the official reports of the Thirteenth Industrial Exhibition.

We make no recommendations regarding season tickets, as circumstances may arise to warrant the discontinuance of season tickets of every description, but the method adopted this year for checking employees we would recommend under all circumstances.

In closing our labors for the Thirteenth Industrial Exhibition, we desire to return thanks to the Managers for their assistance and co-operation in this branch of the service, individually and collectively.

Respectfully submitted,

H. L. HUTCHINSON,
H. S. SMITH,
NATHANIEL HUNTER.

[For detail of tickets sold and taken at the door, see Treasurer's report.]

MUSIC AND DECORATION.

Your Committee would report that the important matter of music received considerable attention. Previous to the opening of the Fair, bids from the various bands being solicited, that of Prof. T. Rosenstein, of twenty-two pieces, was the lowest and was accepted. After the contract was made, much difficulty was experienced by the leader in obtaining the talent necessary, particularly of solo performers, and therefore in some respects the music

was not up to the standard desired and the expectation of the managers. Considering the circumstances, however, we give the leader due credit for the very able manner in which he carried out his contract, doing his utmost to please the visitors.

The difference paid for music between this and last year was \$240 per week in favor of this year, making a saving of \$1,000, an item of much importance at this time.

The expenses of our department have been, for music \$2,465, and decorating \$315.06—making a total of \$2,780.00.

Owing to the fact that the United States Government had given strict orders to the various military and naval stations on this coast that no new flags could be loaned under any circumstances, the decorations heretofore obtained from that source were absent, except a few condemned foreign flags, kindly loaned by Com. E. C. Calhoun of the Mare Island Navy Yard. Still, the display of bunting was very creditable, thanks to the energy of many members of the Board, particularly Mr. Macdonald, who borrowed a large number of flags from our citizens and from the shipping in the harbor. To all who so generously loaned their property our thanks are due and tendered. Our thanks are also due to the Union Band and the Palace Hotel Band, for their kindness in performing several evenings in the Horticultural Garden, free of charge.

We have no recommendations to make for the future, except that the eye and the ear convey to the senses the most exquisite pleasures known, and that whatever is done to please the one by decorating the Pavilion in a tasty manner, or gratify the other by filling it with sweet sound and harmony, will add greatly to the popularity and good will of the public toward the Industrial Exhibitions of the Mechanics' Institute.

J. A. BAUER,
Chairman of Committee.

PRIVILEGES.

Following is a statement of the amount received for Privileges and from whom:

J. Vogeley & Bro., candy.....	\$450 00
George C. Thompson, soda.....	625 00
E. A. Williams, cider.....	251 00
F. F. Jewell, restaurant.....	460 00
F. F. Jewell, ice cream.....	750 00
D. J. King & Co., pens.....	35 00
Cooper & Co., floroscopes.....	35 00
J. Cregan, tops.....	7 00
Timotheatus, fruit.....	65 00
E. Fromberg, telephones.....	30 00

S. Solloy, cement	10 00
Dewey & Co., printing.	500 00
D. S. Ciphers, pop-corn.	526 00
Sundry small privileges.	121 90
Total amount	<u>\$3,855 90</u>

The above amount has been paid over to the Treasurer. Considering the times and the circumstances, we think the above a very satisfactory showing.

Respectfully submitted.

S. DINSMORE,
D. KERR,
ISIDOR BURNS.

LOCATION.

Your Committee on Location report as follows: Although we had some suggestions for changes and improvements, the short time that intervened between the final organization of the Board of Managers and the opening of the Fair precluded any change, and we were compelled to adhere to the old plan of aisles and spaces. Many exhibitors took the same locations that they had last year. The privileges, with the exception of the fruit stand, were given to the old spaces. The work of arranging the exhibits and allotting space was left almost entirely to the Superintendent, whose judgment and taste were well attested to by the general remark of visitors that the exhibits were well arranged and made a good show.

Respectfully submitted.

SAMUEL H. WHEELER,
ISIDOR BURNS,
SAMUEL DINSMORE.

POLICE.

Your Committee on Police would respectfully report that previous to the opening of the last Fair, application was made to the Chief of Police, who kindly detailed Sergeant George Harmon (who, with Mr. John Evatt, acted as permanent doorkeeper) and Officers Houghtaling, Dickinson and Ayers for general duty, whose watchfulness and continued guardianship prevented the commission of many petty thefts that have heretofore given so much annoyance to exhibitors. The only pilfering coming to our knowledge was that of a few boxes of blacking. The juvenile thieves were surprised by Mr. Gilmore, the Superintendent, and the property restored.

Although we had fewer employés and watchmen this year than heretofore,

it was often observed by officers of the Fair and detectives that we had less trouble than at any previous Exhibition, and your committee would recommend securing the services of the same officers at succeeding Fairs. Their knowledge of and acquaintance with lawless persons who usually frequent our exhibitions soon becomes known to such persons and has a tendency to keep them away, thereby preventing loss of articles to exhibitors and pocket-picking.

We anticipated lawlessness towards the close of the Fair, and engaged the assistance of ten additional policemen for the last day and evening, thereby securing good order and propriety.

We also commend the watchfulness, efficiency and untiring energy of the present Janitor, Mr. Tweedale.

A. L. FISH,
EDWARD McGRATH,
C. WATERHOUSE.

HORTICULTURAL GARDEN.

Following is the amount and items of expenditure in our department:

PLANTS AND FLOWERS—

Thos. Saywell.....	\$11 00
Jas. Hutchinson	9 00
J. H. Seivers	34 50
J. E. Tyler	3 75
Miller & Seivers	23 10
E. Mayer	5 50

GARDENER AND LABOR—

Pay Roll, July 20	67 50
“ July 27	18 00
“ August 3	18 00
“ August 10	18 00
“ August 19	21 00
“ August 24	24 00
“ August 31	19 50
“ September 7	19 50
“ September 14	19 50
“ September 21	7 50
“ September 27	5 50
	<hr/>
	\$324 85

We would suggest that in preparing for a future Exhibition that the covering of the roof should be so arranged that a portion of it could be removed

during the day, in order that the garden could have the benefit of the sun, as experience teaches us that sunlight is necessary to keep the plants and grass in a healthy condition.

Your committee would also recommend that the ground be prepared and blue grass seed sown in time to have the benefit of the winter rains and insuring a strong healthy turf for the next Exhibition. We also think there should be a change in the general arrangement of the plants and flowers, so as to destroy as far as possible the sameness in general appearance to that of former Fairs. The uncertainty of a longer lease precludes the idea of going to much expense, but should a renewal be had we think some of our rapidly growing trees and vines should be planted immediately.

Respectfully submitted.

ISIDOR BURNS,
H. L. HUTCHINSON,
S. DINSMORE.

GAS AND WATER.

Your Committee on Gas and Water report as follows:

The course pursued by former Committees was followed in the employment of a foreman to put the pipes, &c., in complete order. S. N. Grubb who had served the Managers during former fairs was engaged for this duty, and also to superintend the lighting and extinguishing of the gas and keep record of the daily consumption. All the small reflectors were cleaned at first, and all the burners throughout the Pavilion fitted with new lava tips. During the first week, and a portion of the second week, the carburetors were used to enrich the gas on the pipes of the east wing; but on account of the offensive smell of the gasoline they were only used long enough to use up one charge of gasoline of 220 gallons. The half net saving of gas, amounting to \$29.92, has been paid to the Pacific Gas Carbureting Company. Acting by vote of the Board, and on the proposition of the Gas Consumers' Association, the pipes were prepared for the automatic regulators of that Association, which were put in on all the pipes, being twenty in number. These regulators effected a saving of twenty per cent. of gas over that necessary to give the proper light without their use. The value of half the net saving after deducting the expense of fitting pipes, has been paid to the Association. The satisfactory results attained by the use of regulators, moves us to recommend that means be taken to have good ones of our own put on the pipes next year. Those used this year have been removed by the Association, as per the agreement made with it. All the large reflectors in the center have been painted on the back of the glasses, as a result of experiments made on one of the small ones by Mr. Grubb. This made so much improvement in the light that we were enabled to take off some of the pressure of gas and effect a saving of one thousand five hundred feet of gas per night. The Art Committee had

the reflectors in the Art Gallery painted white, and we put in new burners, setting the pipes behind the reflectors. By this means the expense and necessity of putting in new reflectors was overcome.

We had the meters inspected by the State Inspector of Gas Meters. This had never before been done, and resulted in the removal of some of the meters on account of registering too fast. As they were so little above lawful rate it was not thought to be worth while to make any claim upon the Gas Company. The price of gas per thousand cubic feet has been the same as last year, three dollars. The Company's bills have all been promptly paid, and it is expected that we will have the expense of the last night's burning remitted to us for the yellow fever sufferers.

The total number of burners in the Pavilion this year has been as follows:

East Wing.....	1,155
West Wing.....	1,680
Center Nave.....	1,106
	<hr/> 3,951
Front and Restaurant.....	157
Watch Lights.....	53
	<hr/> 4,161
Total.....	

The daily consumption of gas is shown in the following table:

TABLE SHOWING THE DAILY CONSUMPTION OF GAS IN CUBIC FEET DURING THE THIRTEENTH INDUSTRIAL EXHIBITION OF 1878.

	MONDAY.	TUESDAY.	WEDN'DAY	THURSD'Y	FRIDAY.	SATURDAY	TOTAL.
First Week.....	9,000	35,900	36,700	35,100	36,300	50,500	203,509
Second Week....	40,100	37,900	39,700	32,300	29,300	37,000	216,300
Third Week.....	33,100	32,900	33,000	33,100	34,300	37,100	203,500
Fourth Week...	32,000	30,700	31,400	31,500	32,000	36,400	194,000
Fifth Week.....	31,500	30,800	30,800	31,900	37,200	44,000	206,200
Sunday Night...							36,600
Total Consum'n.							1,060,100

All the reflectors have been taken down out of the Garden and stored safely under the side tables at the Mission street end of the east wing.

The supply pipes in the Art Gallery are inadequate and not well arranged, having been put up hastily, and we recommend that they be changed for a future fair.

The same arrangement with the Water Company was made this year as last

year. Mr. W. T. Garratt kindly loaned to the Committee two of his well known Hooker steam Pumps, which were used for filling the supply tank in the yard, and for forcing the surplus water back into the street mains after having been used in the fountain. These pumps have been returned to Mr. Garratt in complete order. We would recommend that a vote of thanks be tendered to Mr. Garratt for the use of his pumps, and that the Secretary be instructed to transmit it to him.

The wooden pipe from the bottom of the supply tank being very leaky, and in danger of giving out at any minute, we have put up a new iron pipe with stop valve; all properly connected with the underground pipes. The valve on the stand pipe at the Mission street sidewalk has been repaired.

Following is a record of the expense incurred by us on account of Gas and Water:

GAS EXPENSE—S. F. Gas Light Co.....		\$3,189 15
Gas Consumers' Association.....	184 69	
A. F. Nye & Co.	107 00	
Yates & Co.....	24 40	
F. B. Taylor & Co.	80 00	
Pacific Gas Carbureting Co.....	29 92	
Whittier, Fuller & Co.....	18 75	
W. T. Garratt.....	263 88	
Henry George, Meter Inspector.....	40 00	
Pacific Lamp and Reflector Co.....	34 00	
W. Doerr, painter.....	70 25	
F. W. Miller, blacksmith.....	13 00	
S. N. Grubb.....	13 20	
Labor—Gas Fitters.....	682 25	
“ Carpenters.....	36 00	
Holbrook, Merrill & Stetson.....	78 15	
Whittier, Fuller & Co.....	54 00	
Thomas Day.....	37 10	
Total expense on account of Gas.....		\$4,955 74
WATER EXPENSE—S. V. Water Works Co.....		\$466 60
W. T. Garratt.....	84 47	
Weed & Kingwell.....	6 00	
E. L. Ransome.....	30 00	
Wells, Russell & Co.....	3 50	
Total expense on account of Water.....		590 57
Aggregate expense.....		\$5,546 31

Respectfully submitted,

SAMUEL H. WHEELER,
JAMES DRURY,
D. A. MACDONALD.

ART DEPARTMENT.

Your Committee on Art Department beg leave to submit the following: In June it was decided by the Managers to invite the San Francisco Art Association to take charge of the Art Gallery this year. The invitation was accepted and a committee of five was appointed by them to arrange matters. The following gentlemen composed the committee: Norton Bush, J. W. Rix, Virgil Williams, R. D. Yelland and J. R. Martin. Mr. Martin was elected Superintendent, and under his immediate supervision most of the work was done. The trouble and labor in loaning and collecting as large number of paintings as were exhibited this year is considerable and requires certain requisites not easily obtainable. We are pleased to state that the Art Gallery was fully up to the standard of excellence it has heretofore borne. There were in all 302 oil paintings on exhibition, exclusive of drawings. The display of the latter was very creditable, those from the public and private schools showing decided advancement since last year. The number from the public schools was 2,400. Our local artists were well represented, they having most generously responded to the request that they would exhibit.

A very fine display and addition to the Art Gallery was made by David Hewes, Esq., of Oakland, who, from his large collection of art treasures recently obtained in Europe, placed on exhibition eight pieces of marble statuary (see Art Catalogue), also a case of Egyptian curiosities, ancient and rare, and a mummy still swathed in cloth woven thousands of years ago. His collection was a very attractive feature. P. Leisenfeld had on exhibition three busts in marble—"Prayer," "Infancy," and "Modesty"—very finely executed; and Mr. Edward McGrath, three pieces in verd antique of faultless workmanship, the statuette of Mercury being a most wonderful specimen of the sculptor's art.

The cost of the Art Department has been \$963.50, of which \$236 is for cartage on pictures. We would recommend that in the future an expressman be hired by the day for one week before the opening and one week at the close of the Exhibition, to do the cartage, thereby saving a large sum, as the expense in that way would not be more than \$6 per day.

An exhibition of photographic views—"The horse in motion," Central America, and Panama—was given on two evenings by Mr. Muybridge, in the Reception Room. Although very interesting and attractive, the unsuitableness of the only room available forbade a continuance, as at first intended. If a suitable hall in the Pavilion were arranged for such exhibitions, they might be introduced during the Fair with pleasure to visitors if not profit to the Managers.

Respectfully submitted.

DAVID KERR,
S. H. WHEELER,
C. WATERHOUSE.

PRESIDENT'S REPORT.

To the Trustees and Members of the Mechanics' Institute:

Since the last quarterly meeting of the Institute the necessary repairs have been made to the building, etc. It is now in a good condition for the winter storms. The shelves have been labeled and the work of organizing and classifying the books in the Library nearly completed, the same having been carried along so as not to interfere with the duties of the employés. Now that the labors of the Exhibition are over, greater progress will be made, and we hope to soon be able to lay before you the long delayed catalogue.

The number of subscribing members on October 1, 1878, were.....	1,650
Life members.	148
Honorary members.....	6
Total	<u>1,804</u>

The numbers joining are up to the usual average, and those whose membership expires are nearly the same, the percentage being in favor of the Institute, since the new system of collection has been adopted.

Since the last quarterly meeting the pressure of hard times compelled a reduction, or rather a monthly rebate, of rents in order to keep our tenants:

The court room rebate.	\$75 00
Store No. 31.....	25 00
Store No. 29.....	25 00
Total reduction.....	<u>\$125 00</u>

Since then the payment of the mortgage on the Pavilion reduces our monthly expenses..... 83 00

Leaving our monthly income less than formerly..... \$42 00

The amount of unpaid bills is to

Quaritch, of London.....	\$1,217 25
Stevens, of London.....	930 00
Incidentals due in London.....	24 25
	<u>\$2,171 50</u>

Since the above was written a check has been drawn and a letter of credit obtained to pay this amount and placed in the hands of Mr. James Spiers, who is about to visit London. Excepting the \$17,000 mortgage and the liabilities of a certain suit now in the Supreme Court, "Potter vs. the Mechanics Institute," in which judgment for the plaintiff was given by a lower Court in the sum of \$1,500, the Institute and Pavilion do not owe a cent.

The quarterly income from rents average.....	\$2,250
From dues, etc.....	2,415

Total from all sources.....	<u>\$4,665</u>
-----------------------------	----------------

The quarterly expenditures are:

Printing, stationery and advertising.....	\$120
Books from London.....	246
Books from home agents.....	354
Building account.....	330
Papers and periodicals.....	300
Water and Gas	515
Insurance.....	150
Taxes on account	450
Repairs.....	190
Petty cash—sundries.....	110
Interest on \$17,000.....	340
Salaries.....	<u>1,065</u>
Total.....	<u>\$4,170</u>
Excess of quarterly receipts over expenses.....	\$495

This result is due to the reduction of the number of employees and their salaries, and the payment of debts on Pavilion.

The cash on hand to date is:

In the Sinking Fund.....	\$1,819 22
In the Institute Fund.....	763 93
In the Pavilion Fund.....	863 56
In the 13th Exhibition Fund.....	<u>5,570 50</u>
Total.....	\$9,512 20

Estimated expenditures to January 1st, 1879:

Bills—Quaritch, London.....	\$1,217 25
“ Stevens, London.....	930 00

Taxes on Institute, 1878-79..	1,800 00	
“ “ Pavilion, “	5,000 00	
		<hr/>
		\$8,947 25

Leaving a balance on hand of. \$564 95
to begin the year 1879 with, and all bills and taxes paid; a surplus sufficient to open the Fourteenth Industrial Exhibition.

At a special meeting held June 1st, 1878, a resolution was adopted requesting the Trustees to open the Library on Sunday at such hours as the Trustees direct, and to take place the first Sunday in July. This request has been complied with, and the Librarian reports up to date an average daily attendance of sixty persons. As this was opened during fair time it is hoped the next quarter will show an increase in numbers.

As the condition of the Institute is most satisfactory I suggest a committee be appointed from the members whose duty shall be to actively canvass for new members, and that means be taken to advertise the great advantage offered by the Institute to the mechanics, by placing a placard containing the dues, &c., in the various workshops and factories of the city.

From time to time various amendments to the Constitution have been offered and generally voted down, the members recognizing the dangers of amending a tried Constitution. I am of the opinion that the time of electing Trustees should be changed to near the first of the year, and the newly elected take their seat at the quarter beginning March 1st, that there may be no confusion during the exhibitions.

The manner of electing the Trustees heretofore observed—namely, one-half annually—is the safeguard to the Institute, and should be maintained, as it is safer to retain part of the Board, who are well versed in the wants of the Institute, than the election of an entire new set of Trustees.

As some contradictions and inconveniences exist in the present Constitution, and some articles should be more clearly defined, and the time of holding meetings must be changed if the time of holding elections is altered. I recommend a committee be appointed to take up the Constitution and revise the same, and report at a special meeting, to be held for that purpose, and that notice of an amendment, changing the time of elections, be given tonight, that the three months' notice of amendments and twenty days' notice of the election may occur before the commencement of the quarter beginning March 1st, 1879.

At the last quarterly meeting the financial condition of the Institute and Pavilion was as follows:

Mortgage on Institute	\$17,000
Mortgage on Pavilion.	10,000
Floating debt	6,000
	<hr/>
Total.	\$33,000

In addition to these heavy pecuniary encumbrances, was added the worse one of a membership divided and antagonistic, and the Board of Trustees in

the position of eight to six. How to harmonize these factions and save the Institute from financial ruin was the complex and difficult problem which your officers had to encounter. After various meetings, a compromise was effected by removing any inferences or reflections upon the subject of the controversy by a full and complete reinstating for a limited time. The lull in the storm was of brief duration, and was renewed at the expiration of the truce.

THIRTEENTH INDUSTRIAL EXHIBITION.

July 9th, by a vote of eight to six, it was decided *not* to hold the Thirteenth Industrial Exhibition, as previously announced. This was compromised by agreeing to open the Exhibition on August 13th. On this uncertain and vacillating state of affairs it became imperative to reorganize the Board of Trustees, or else all pecuniary benefits to the Institute from the Thirteenth Exhibition would be lost; as part of the members and Trustees were lukewarm on the subject of holding the Thirteenth Industrial Exhibition, if not in open and avowed hostility to it, claiming the Twelfth was a loss, and the Thirteenth would swamp the Institute.

In accordance with the exigencies of the case a firm policy was adopted, which resulted in the re-organizing of the Board favorable to the holding of the Thirteenth Industrial Exhibition. This took place Saturday, August 9th, only three days before the opening. All the committees had to be appointed and the whole business of the Fair re-organized and put in motion. That some mistakes should occur and some things be overlooked was most natural under all the circumstances.

The Exhibition was opened at the time announced, and resulted in a net profit to the Institute of \$20,351.81, which is a complete and final answer to all opposed to it and an endorsement of the Trustees who persisted in holding the same.

The receipts from sale of tickets were.....	\$37,289 65
From privileges.....	3,855 90

Total receipts.....	\$41,145 55
---------------------	-------------

The expenditures were as follows:

Advertising.....	\$1,105 50
Art Gallery.	963 51
Decorations.....	231 06
Expense Account....	750 67
Fitting and Furnishing.....	2,061 93
Horticultural Garden.....	478 35
Fuel.....	219 38
Light.....	3,547 96
Music.....	2,465 00
Premiums.....	490 00
Printing and Stationery.....	635 08
Salaries and Wages.....	6,453 30

Water	466 60	
Yellow Fever Sufferers	1,035 90	
		<hr/>
Total expenses		\$20,904 24
		<hr/>
Net profit		<u>\$20,241 31</u>

The disbursements have been as follows:

Mortgage on Pavilion	\$10,083 00	
Bronze medals 12th Fair	1,118 88	
Paving Market Street..	2,682 15	
Boxes for medals	210 00	
Paving crossing Market and Eighth	424 22	
Water last Fair	666 66	
And sundry other bills from 12th Industrial Exhibition	881 22	
Janitor's salary..	360 00	
		<hr/>
Totals on Pavilion		\$16,426 13

In other words, the Managers received from the Trustees the Pavilion encumbered with a debt inherited from the last or Twelfth Exhibition of \$16,426 13, and return the Pavilion free of all debts and a surplus to meet unpaid bills of the Institute. This result, so beneficial to the Mechanics' Institute, is the result of harmonious and united action of the members and Managers, and the Institute is indebted alike to the patriotism of both factions, who surrendered their individual wishes for the common good of all.

During the Fair petitions from various sources were received requesting the opening of the Exhibition on Sundays and the reduction of the single admissions to twenty-five cents. The Board addressed a note to each exhibitor, asking their views. The responses received were not in favor of Sunday opening from the exhibitors who displayed the largest and most valuable goods, while most of the exhibitors of unimportant articles voted in favor of opening on Sunday.

The appeal for aid from the yellow fever sufferers induced the Managers to open the building in behalf of charity on Sunday, the 15th instant, and reduce the admission to 25 cents. The result was not satisfactory, as the attendance during the day was less than three thousand, and during the evening but little more; the total sale of tickets was 6,051. The experiment proved that there was no demand for Sunday opening, at least in behalf of charity. The net result was \$1,035.90, which was paid over to the Chairman of the Relief Fund.

The total daily expenses for preparing and running the Thirteenth Industrial Exhibition was \$693.13, which sum, in my opinion, can be reduced in the next Exhibition. The experience of former exhibitions seems to justify the opinion that thirty days gives the best pecuniary results.

The number of complimentary tickets were reduced to seventy-eight, and as

most of those receiving these were able to pay for the same, I recommend the abolition of all, and believe that sound business economy dictates the policy of paying a fair price for what you need. The abuse of the old system of admission tickets necessitated a change, as observation confirmed the supposition that at least 33 per cent. of the visitors paid nothing. The adoption of the coupon ticket secured the payment of all who entered over the number allowed by the ticket; and, while it deprived none of any privileges rightly enjoyed before, it prevented many of the abuses. The chairman of the ticket committee is entitled to the credit of this change, and deserves the thanks of the Institute for the energy and ability with which he attended to this very important matter.

Without exception, all worked smoothly and satisfactorily. The comfort and convenience of the visitors seems to me to justify the Board of Managers in opening an entrance on Market Street. I recommend that the same be done at the next Exhibition.

The interest manifested in stereopticon and microscopical views justifies the expense of providing a suitable room for these exhibits; and I recommend to the Board of Managers to add a building in the yard on the Market Street side of sufficient size for these purposes, and also to provide a smoking room.

I most positively recommend the prompt opening of the Fourteenth Industrial Exhibition, and feel confident that with economy its profits will pay all indebtedness of every kind on the Institute, secured by mortgage or otherwise, and the Fifteenth Industrial Exhibition should place at least \$25,000 to the credit of the Institute, to supply the funds for increased facilities.

The thanks of the Institute are due to the owner of the ground upon which the Pavilion stands (A. B. McCreery, Esq.), for the very patient and courteous manner in which he waited for the arrears due him, and for the very generous donation of the amount of rent agreed upon for the years 1878 and 1879.

I desire to return my sincere thanks to the chairmen of all the committees, and to the members and employees, for their cheerful support under all circumstances, and because their duties were more exacting and more onerous. I desire especially to mention the chairmen of the Finance, Ticket, Gas and Water, Privileges, Building, and the Art Committees, for their faithful and untiring efforts in behalf of the interests of the Institute. Also, to the Superintendent and Secretary for the good will and energy with which they pushed their respective missions to a complete and final issue which enabled the Board of Trustees to make its final report to-night, in less than a month after the close of the Thirteenth Industrial Exhibition.

In conclusion, members of every opinion, allow me to appeal to you to lay aside every feeling or interest which tends to place this most worthy result of twenty-five years as a matter of second importance. But united, each helping the other, shoulder to shoulder, press forward and upward, towards the goal of permanent success. *It is close at hand*; it is within reach, your income is larger than your expenses. Your total debt is less than the profit of the Fourteenth Industrial Exhibition will be. The coming years should add to a splendid fund, with which to enlarge your library, increase your reading room,

add to your social conveniences, and make true the long delayed hopes of the best friends of the Institute. And recollect it is the mechanics who are on trial—who are doing this. Its fulfillment will be their honor; its failure their disgrace. So far not a single measure of doubtful morality has been tried; not a single dollar of aid in the name of Charity has been used to build its walls or fill its shelves; but manfully, and in business fashion, you have paid one hundred cents on the dollar for everything you needed; you have given and are giving now the most to the public for the cost. Uplift the cause; cement as brothers every interest, and make the Mechanics' Institute, and the name Mechanic, a synonym of success and fair dealing.

IRVING M. SCOTT, President.

October 8th, 1878.



**NON
CIRCULATING**

Mechanics' Institute Library



3 1750 03324 9874

REF
606
M48r
13th
1878

Mechanics' Institute
Report of the
industrial exhibition

Archives

JUL 28 2005

